

Claire T. Carney Library, University of Massachusetts Dartmouth  
North Dartmouth Massachusetts

Rudolph, Paul Marvin, 1918-1997, and John Peter, 1917-1998. John Peter Interviews Paul Rudolph [Transcript]. Library of Congress, Washington, DC, 1959.

Recorded in New Haven, Connecticut on March 27, 1959.

John Peter: Now on this first one, Paul, what we'd like if we could is a little of the background, sort of in terms of your mother and father, if you wish to. Whatever influences not only of your architecture, but maybe why you even became an architect, how you got interested in architecture?

This is Paul Rudolph, and we're recording him at his own house in New Haven, Connecticut. Then your name, and maybe birthplace, and a little background.

Paul M. Rudolph: My name is Paul Rudolph. I was born in Elkton, Kentucky, in 1918, the son of a Methodist minister. I do not believe that I can remember the time when I did not want to be an architect. I remember my parents, or Santa Claus rather, brought my elder sister some building blocks, and I felt that Santa Claus had made a mistake that they were certainly meant for me and indeed I usurped them.

JP: You say that you can't remember a time when you didn't want to become an architect. Had anybody in your family ever been an architect or builder?

PMR: No. I really don't know. My mother was interested in painting, as a matter of fact, and my father was concerned with building a church, as well at more than one time during my early childhood. And this undoubtedly had its effect.

JP: Did your family know architects?

PMR: No. I remember once when I was about nine I guess they took me to see an architect for the first time.

JP: But you remember this?

PMR: Oh, certainly.

JP: Did you talk to him?

PMR: Oh no, I didn't talk with him very much at all. My first architectural experiences I remember were drawing on paper in my father's church, and then cutting it out and bending it to make a three-dimensional model.

JP: When was this?

PMR: Oh, I was five or six.

JP: Where did you go to school?

PMR: I went to grade school and high school in many towns in Kentucky because my father was constantly moving. My father became the head of a small church in Alabama, and we went there. I went to study architecture, and the nearest school of architecture was the Alabama Polytechnic Institute [now Auburn University]. So it was natural that I should go there. I worked for architects during the summer, and eventually went to Harvard.

JP: When you say worked for architects, were they local sort of architects or were they very well known, or did they have an influence. Did some teacher have anything to say about your work or about architecture that determined the course which you tended to follow?

PMR: That summer that I graduated, that I got my Bachelor's degree, I started to work for a firm in Birmingham, Alabama, and indeed worked for them for the whole year. It wasn't until this time that I discovered that I did not know really how to put materials together, or how to make working drawings. This came as a rude shock to me. I wanted to design, but I was not fully equipped to design. It affected me tremendously. I remember that year I could hardly talk, literally, for a whole year. But I did learn, as I look back on it, more during that year than any other single year. This was a very bad firm, it so happens. The buildings were terrible. But they were put together reasonably well. I learned what it was to keep the weather and wind out and how a building was affected by the unions and the various trades, and the sequence of erection. It was a great eye-opener. It was a very real experience. Then, fortunately for me, that year was immediately followed by an almost equally important year which was spent at Harvard with Walter Gropius [1879-1964], who undoubtedly was the most important single influence or man who influenced me. He made very clear what the real issues were, and did not require you, unlike many people seem to feel, that you follow or do it the way he did it. He set me free. This opened up tremendous avenues for me to explore in my own way.

JP: Those two periods were tremendously important, both a completely different kind.

PMR: Yes, and fortunately the one preceded the other. I didn't plan it this way. It just happened.

JP: Do you think this is a good kind of experience for anybody studying architecture?

PMR: Yes. It's quite obvious; indeed we go out of our way to get people to break their studies with a year in an office. It's really wrong for students of architecture; it seems to me, to want to design immediately when they get out or in school. They should really be concerned with working drawings. For young architectural students to want to work for "name" architects in their design departments, I think, is the end.

JP: They really should get down into the guts of it. It probably doesn't matter so much that they be a name architect, as long as the architect is putting up honest-to-God buildings.

PMR: Quite often, it's better if it is not a name architect, because he is probably more concerned with the techniques of how you really do the thing, and this is after all what this man needs to learn. Any architectural education in a school is limited. I think it is generally recognized that it requires about three years apprenticeship to truly make a finished architect.

JP: Not unlike a doctor.

PMR: Right

JP: In other words, the finest medical school in the world, it's still limited training which you can get in school.

PMR: Right. There are so many things that can best be learned outside of the school of architecture.

JP: Especially in these fields that you were talking about. Maybe this is a trick question but what is your definition of an architect? What is an architect?

PMR: An architect is a man concerned with building meaningfully. As opposed to someone who is interested in building efficiently, or sometimes even beautifully, or as opposed to the whole engineering aspects of building, as opposed to adorning buildings, as opposed to all the ramifications that consultants get into. We often apologize for being interested in meaningful buildings, and tend to talk the language of the master builder, or the engineer, or the efficiency expert, or 25 other experts. But we do our profession an injustice in that way.

JP: Very good. Was there anything specifically that Professor Gropius or some other person may have said or something that you read whether it is in architecture or in another field like music that stuck in your mind as particularly good advice?

PMR: Gropius is very eloquent, and much of what he said I remember in essence. But I don't think I could quote it. I constantly remember things that he said. He would always go to the principle of the thing, not the individual application. This was his greatness, I think.

JP: Is there anything that you read or any particular critics that influenced your thinking about architecture?

PMR: Yes. "Space, Time and Architecture," Giedeon's [Siegfried, 1888-1968] influenced me because I read it at the time when I studied under Gropius.

JP: You hadn't read it before?

PMR: I had not read it before

JP: Had you known it even existed?

PMR: No. Wright's [Frank Lloyd, 1867-1959] writing, which I had read very early, certainly had its toll.

JP: Might influence you still, somewhat?

PMR: Oh yes, certainly. Also the translations of Le Corbusier [Charles Edouard Jeanneret, 1887-1965], which I had also read very early.

JP: Does writing have, even aside from yourself, an important influence? Has a book like "Space, Time and Architecture" had a great influence on architects in our times?

PMR: I think it has.

JP: I think as a single book, along with the ones you mentioned all have had [an influence] wouldn't you say?

PMR: Yes. Probably too much in our time.

JP: I was leading up to that. I wondered if the old set of bibles has been replaced with at least the very young architects, sort of a new set.

PMR: Wittkower's [Rudolf, 1901-1971] writing, more recently becomes meaningful. Vincent Scully's [1920- ] work, "The Age of Humanism" and so forth.

JP: So writing influences part of the education. What would you say are the most important influences in your own work, aside from the personal influences? Did working in Florida influence the direction your work took? Is there anybody whose work in the past has influenced your thinking?

PMR: I admire Le Corbusier above everyone else because of his manipulation of space. Interior space, I should say. And yet he manages to make the exterior a meaningful whole. Now, for me, Wright manipulates the interior space magnificently, and his control of the interior natural lighting is without parallel. But quite often the exteriors for me seem to be left to play a secondary role to the interiors. They are not always as satisfactory as the interiors. It's the manipulation of space which separates architecture from all the other arts, as far as I can see. This is really what separates the men from the boys. In this sense, I admire these two men. The thing which interests me the most, apart from the manipulation of space, is the environmental question which has also to do with the space between buildings, or the space between the landscape and the buildings. I feel that the great architects of the twenties showed us how to make individual buildings very beautifully. But they tended to ignore the environmental questions. Le Corbusier for instance, said, "Let's tear down Paris, and rebuild it now in a new way." Fortunately this didn't happen. Wright said every man must have an acre of land and greenery between, so that each man can do whatever he wants. Unfortunately, this didn't happen, or fortunately whichever way you want to look at it. Quite often building is a matter of adding to an existing complex, and I think we need to respect what's gone before much more. One remembers that it took a thousand years to build the Piazza San Marco [Venice, Italy], and yet each man respected what went before. Each man did not compromise with what he wanted to do. He built his own way. But it still made a whole, not the individual parts. We don't understand this well enough.

JP: In fact, it wasn't so long ago when Le Corbusier and the moderns felt that this was wrong and bad and poor. This is a relatively short span of time that we've begun to say this. Do you feel that we are increasingly aware of this as a kind of a social art, too in the sense that you respect other people's work, and it takes more than one person or do you think that's part of the same thing?

PMR: If one respects what another architect has done, whether he is living or dead, does this make it more a social art? I don't know.

JP: I would say it only becomes a social art in a sense that it does involve, when you put it up you are putting up not a private painting in your own room, but you are putting up something that involves, let's say, if you're building in a square, there are certain social responsibilities in that people use it.

PMR: Every building participates, and is a part of social architecture.

JP: That's right. In that sense. Which some art forms don't have to be. You could play the piano downstairs and it would not have a relation to anybody else.

PMR: Architecture is a social art, but the fact that we are more interested in environmental questions doesn't necessarily mean that it's a more social art than it ever was before.

JP: There was a point where architecture was almost looked on as a fine art and that the hell with all these other factors. This is a slight attitude that still enters in. One might say "I'm going to ignore the whole other problems. This is an individual work of art, and if it's beautiful enough, then these other things don't matter." The fact that somebody says I think it looks foolish there, or gee that's terrible because it doesn't relate to these others, and that is not my concern. There is this attitude and to that extent I was meaning "social." So this is one very important influence. Are there some other places where you feel this attitude, aside from the Piazza San Marco? How about in Scandinavia?

PMR: I've never been in Scandinavian countries. I would like to go, but other places interest me so much more. By and large they seem too "sweetie-pie" for me. But that's neither here nor there.

JP: I only mention it because some people feel that this kind of relationship has been more honored in some parts of Stockholm, for instance

PMR: I'm sure that's true.

JP: The particular point you're making, the architects who are good, bad, or indifferent paying attention to the whole.

PMR: The other thing which interests me is that if a building is really any good, it should be only at that particular place and nowhere else, it seems to me. This has to do with the fact that scale and proportions change. For instance, everything in New York is large compared to everything in London. That only brick looks right in Charleston, South Carolina. That a concrete block would be abominable, but a concrete block is quite acceptable in Florida, as you can see. Not much of it. This indigenous quality, I feel is important. The great chain stores' building the same all over the United States really bothers me a great deal. In many ways the architects do the same thing.

JP: This in a sense would oppose the architecture that would tend to make a formula, whether it's a high formula like Mies' [Ludwig Mies van der Rohe, 1886-1969], or a formula that's a little better than an automobile. The perfect machine, and let it sit any place it wants to. You are not for that notion.

PMR: The perfect machine and the control of the climate of course are still here to stay. The industrial revolution has affected architecture in the industrialization of structure. It is meaningful. The whole prefabricated movement, one cannot deny. But I submit the thesis that the machine should serve us, not dictate to us. That the air-conditioned building in Boston does not have to be the same as the air-conditioned building in San Francisco. That the scales of these two cities are quite different, and the ways that people live are really very different. That you could even use the same prefabricated parts, but that the building take on overtones of the individual area. That's easier said than done. I don't mean to say the regionalism is the only

determinant of architectural form. And I certainly don't mean to deny the whole industrial revolution.

JP: Paul, do you feel then when you said, your original statement that it should be a building in that particular place and time do you feel that this is also true like Wright might feel it true of the site? For instance, your building that we just went to see. Did the fact that it was set on this site in this way, did that also give it its character?

PMR: It certainly helped to determine it. Wright's feeling for the site is one of his greatneses, of course. It is fairly personal, as it so happens. It is noteworthy that he is by far the best; he is all by himself. Wright cannot build next to anything else, as witness the Guggenheim Museum [New York, NY, 1956-1959]. He has to be in the middle of a forty-acre field.

JP: He sensed this. You know, he wanted it in the Park.

PMR: Well, that's where it should be. They should have given him the Park.

JP: He said, after all, the Metropolitan is in the Park, which I never think of as being in the Park. Do you?

PMR: No, you don't think of it being in the Park. You think of it as being on Park Avenue, I mean Fifth Avenue.

JP: He was right.

PMR: Yes, of course. It's too bad they didn't give the old boy the Park.

JP: But getting back to that. You say he feels that way. When you say this, for instance, would your building, if you had a different site, do you feel that making the site, just building a parapet and putting the building there, would that have been the same as they said, well, we can't build it there, we want to build it someplace else.

PMR: Oh no. It would have been quite different, very different.

JP: So the site does...

PMR: Absolutely. That building is perhaps not as good an example as some others.

JP: Because you did in a sense create, build the site as well as the building. Some of the things we talked about, you want to screen that because it was the west, and all these things entered certainly into it.

PMR: This building is only part one part of a greater whole which is yet to come. Therefore, that whole does not emerge. Right now, I don't think it's very satisfactory.

JP: Yes, I see that.

PMR: So the entire meaningfulness...

JP: But the site did influence the complex.

PMR: It certainly did.

JP: That tree. That's part of the site. What I'm trying to probe into is that when you say the building should be built in a particular time and a particular place, you don't just mean a place, New England, you also mean...

PMR: A particular site. Oh yes. A particular time, a particular place and a particular site.

JP: By place you don't mean just a large place, you mean a specific place.

PMR: Right.

JP: Is this one reason why your work, let's say, in New England, looks quite different from your architectural work in Florida?

PMR: Surely. Oh, absolutely. That's one reason why building for me in New England was a very, very difficult thing.

JP: Because you were in a sense throwing out a lot of the things and starting again anew. What about environmental factors; the mechanical age is here to stay and we have air-conditioning. Hence, we can overcome nature so you can ignore nature. And yet we were talking about this notion of the screen. Let's take nature as being the sun and the pounding of a lot of heat into the sheer glass windows, and glare, and so forth. There are chances to work in a new way with nature as well as just to oppose it with the sheer thing which sometimes isn't very economical. One can do it, but should one do it? What about this whole business of screening and the filigree look? We see and hear talk much more about it all the way from Ed Stone's [Edward Durrell, 1902-1978] to a lot of others.

PMR: The advent of air-conditioning has not been faced in terms of architectural design. We mysteriously air-condition and heat our buildings, as a matter of fact. Beautiful structures are evolved, but then they are rendered like Swiss cheese by all the duct work and so forth. The integration of these two is really interesting. I don't know whether you know our Blue Cross Blue Shield Building in Boston, a multi-story building which is now on its way up. But we've made an effort there to make the air-conditioning...

JP: Is that the one with the outside...

PMR: Yes. We've made an effort to make the mechanical system into something more meaningful than just keeping you hot or keeping you cold or keeping you dehumidified, or whatever it is. For instance, in this building the support of course comes from the bottom. But the mechanical system is like a great octopus, coming from the top, and encircles the whole building. The hot air and the cold air and the returns are outside the columns, and then the horizontal branches are clearly shown. So that this becomes like a great vine encircling the whole building. If I were to make a prognostication, I would say that 35 or 40 per cent of one's budget that you spend on mechanical equipment, in the next two decades we will find ways of making it more meaningful. This is for me becomes much more the element which becomes really sculptural; it gives the possibility of a really great play of light and shadow. Why should all our multi-story buildings just mysteriously be air-conditioned? I think you might really express this fact. This obviously could lead to a kind of mechanical exhibitionism, just as we have gone through a stage

and are still in a stage, to a degree, of a kind of structural exhibitionism. We've discovered how to do all kinds of things and we feel we have to do them, whether they are meaningful or not. We have to show them, which is the real point. So this is dangerous but I think there is an element of truth.

JP: There also could be an element of enrichment and change.

PMR: Yes. I'm sure it will. We mustn't build buildings which are made like Swiss cheese because of this mechanical equipment. This 35 or 40 per cent that one spends on these things, one used to spend that on painting and sculpture and adornment. But you couldn't sell anyone on that now. We have to be more comfortable. But it's just possible that we got the real manipulation of light and shadow by this very means.

JP: We get our sculpture out of this in any event. And this has been very little explored.

PMR: Very, very little.

JP: We even on a modern building would certainly build it as if it were a 1920 modern building which, in terms of flat planes, was really a piece of sculpture in the abstract sense.

PMR: One of the things we have done in the department of architecture here at Yale is to bring the mechanical engineer into the drafting room. Heretofore, he has always been in the lecture room. He's still in the lecture room. But we want him to be in the drafting room because what happens at the drafting board over a clean white piece of paper is ultimately the important thing.

JP: So you think, Paul, that this will have one real influence, this whole new integration of the mechanical part. What we were getting at was this notion of, since we can air-condition, do you still think its worth one's while to try to not make a glass box, but to try to create some method of creating shade and dappling of light and things like that.

PMR: You of course have reference to the grills of which we've seen many.

JP: The grills, or things that you have used from time to time like we're talking here in this building. A kind of canopy-sense.

PMR: The manipulation of natural light tends to have escaped the whole international style. Wright was born on how to do this. But the international style said let's have light and air and parallel with that came a lot of glare. It took Le Corbusier twenty years to build buildings which didn't have glare in them. He knows how to do that beautifully now. I think that's part of the whole impulse of post-war buildings. Apart from the manipulation of the natural light, comes the desire also to constantly reduce the scale of the building. A building should be meaningful from no matter what distance you look at it, if you are quickly flying over it, or riding by it in a vehicle. It should have a certain diagrammatic quality which can be read. You can see it only from a glance. If you approach it by foot, it has to have additional layers of meaning. You have to see things which you haven't seen before. As you come closer in traditional architecture, the meaningfulness of the building is maintained by the introduction of moldings and capitals on the columns. We have knocked all of that out and in a sense have not found anything to replace it. It's one reason why the grills and what you call the filigree look, tend to be satisfying up to a certain point anyway, because it does give this play of light and shadow and maintains one's

interest as one comes close to the building. It has to do with how architecture is read and from what distance. We know well how to make diagrammatic buildings, which are meaningful from a great distance, but quite often they fall apart when one approaches them and inspects them more closely.

JP: Somebody said that we sometimes lose our human scale. I think Eero [Saarinen, 1910-1961] said that sometimes a building is so simple that a person tends to judge it by the doorknob almost because this is the one thing that one can see and they hardly see that big building; they see the middle part; they're there and they just look at it.

PMR: Because the bulk of our buildings is much greater than it has ever been before. That's one of the characteristics of twentieth century building that they are much larger than ever before. This creates new problems. For a multi-story building, for instance, when seen from most points of view, is the first three or four floors, on the crowded street, which is really meaningful. What's up above doesn't matter so much. It can be 35 stories high or 38 stories high and no one cares. It's only when seen from a great distance that it is seen.

JP: Some of these buildings are virtually impossible to photograph as a building. You can't even get in a position where you can really see it in total. It's amazing. I noticed when they tore down that building; you could really see the Lever House [New York, NY, Gordon Bunshaft, 1909-1990, of Skidmore, Owings and Merrill, 1951-1952]. I mean things like that. It never will be revealed, much less for the normal person.

PMR: The angle of vision, the angle that you really see things from, we don't perhaps pay enough attention to. I am fascinated by this. Buildings aren't meant to be seen just from the air. They have to be seen from where you are walking or riding.

JP: Yes, and the number of people who see a building from the air is low. And maybe then they see it as a complex and not as a building. Flying over Manhattan, you really don't get a view of the Seagram's Building [New York, NY, Ludwig Mies van der Rohe and Philip Johnson, 1957-1958] from the air. You get a picture of Manhattan, maybe.

PMR: I might add that the screens that we used on Wellesley were introduced not only to keep the light and control the glare, but to help relate it to the earlier buildings which had very, very delicate moldings, as small as a quarter of an inch sometimes. And the sense of the reduction of the scale was eloquently maintained in the earlier buildings. We wanted in some way to do the same thing in that building. Another example of this is that clusters of columns were used, rather than a single column. From a distance, the cluster looks as a single column. But as you approach it, it is seen that it is really a cluster of columns. Of course this is a page directly out of Gothic architecture.

JP: This again is a certain sense of a lesson learned from tradition or a lesson learned from before and also in respect of what is there. Is that right?

PMR: Yes. We threw out much. When the great revolution in architecture came which had validity, and we are slowly now sifting and putting back in some of the things which didn't seem to have so much validity.

JP: Do you think the students are feeling this too.

PMR: Very much.

JP: Do you find your students might want to go to Europe?

PMR: All of them want to go to Europe.

JP: If they go to Europe, they might want to see things not necessarily just the modern buildings?

PMR: Perhaps their ideas about this are not too clear. But they understand the value of tradition in architecture much better than we did, than I did when I was a student. This is partially because the teaching of history is done in a much better way. It becomes more of a teaching of the history of ideas rather than when things were built. Why things are the way they are.

JP: Is there an interest in other kinds of enrichment. We spoke of filigree. Is there a striving for what might be called decoration?

PMR: I think that architects are interested in juxtaposing works of art to their buildings. But, I do not believe that any architect has found the satisfactory way of really integrating works of art with a building. I really believe that the painters and the sculptors are on a quite different wave lengths from the architects. I am not saying that we are right and they are wrong. I am just saying that their concerns are vastly different from ours. Part of the difficulty is one of scale. The painters and the sculptors make everything too small; these things are lost. That's perhaps not necessarily their fault, because, sculptors especially, do not have the opportunity to make things from sufficient scale. I believe that it's going to be fundamentally up to the architect to find a way of reintroducing painting and sculpture. There is the desire, but there is not the knowledge how to go about this.

JP: What about other things like fountains and landscaping? Do you find more integrated interest in this in architecture today?

PMR: The art of landscape architecture is almost completely lost. It is only the large commercial firm that can afford a fountain, or think it can afford a fountain. I'm not saying this is right or wrong, but it is part of the spirit of the times. It may be that the municipality or the governmental agencies will become more potent in the sense of the city as a whole and its beautification. I don't know.

JP: Are architects interested in it?

PMR: Architects will give lip service to this, but architects are not the people who really bring this into being. They only, in a sense, are the tool by which the people's desire becomes manifest. It is noteworthy that in Italy, the first thing they did after the war was turn on the fountains. It would have been the last thing if we would have done it, if we had any fountains to turn on.

JP: This is a matter of temperament and tradition. But that there are fountains has to come not from one individual architect but from the whole people wanted these kinds of things. Going back for a second, Wright is opposed to something like Venetian blinds. He would say that it's much better to build an arbor outside the window and to plant grape vines. These are automatic and natural Venetian blinds in that they are living things. They drop their leaves when the sun is

low and weak in wintertime and are full when the sun is high and hot. That the light pours through the a grape arbor is so much more beautiful than a mechanical thing in that the leaves move, it's chlorophyll green and all these things tend to make a much more handsome and automatic and enriching thing. How do you feel about the use of natural things, as opposed to not even mechanical things like Venetian blinds, but grills and things like that.

PMR: Mr. Wright has been concerned for the most part with the single family house, which in many ways is one of the most difficult architectural studies because there are so many choices. There the natural element can certainly be used in any number of ways to keep out the sun, to keep you cool, to keep you warm, whatever it is you are after. But in the multi-story building the number choices reduces very, very greatly. Because of the population curve and the sheer bulk of the buildings involved, one becomes interested in this kind of building too, and there the natural device of the grape arbor that you mentioned would be impossible, say on a four-story high building. It is certainly not possible in a 40-story high building. It is the tragedy of Mr. Wright but also of this country, that he never really built very large buildings. It is also noteworthy that when he did build the few multi-story buildings that he has built, he did not use natural means at all to do the things you speak of. The real point is that the small-scale structure, the number of choices is much, much greater, than for the large-scale structure. For me, the essence of our time probably becomes manifest in the larger scale structure.

JP: But you personally wouldn't be opposed to this, one solution or the other.

PMR: No. He can do whatever he wants.

JP: What would you say is wrong with architecture today, or is anything wrong with architecture today?

PMR: There's a great deal wrong with architecture. I think the bad buildings we see on all sides are due to the architects, not to the owners, not to the clients. This is partially because of architectural education. It's partially because we have become concerned with any number of things which have nothing to do with architecture, really, and we have sold our birthright in a sense. We have apologized for our wanting to build meaningfully or beautifully. We pass ourselves off as efficiency experts, as time and motion people, as master builders, you know all the jargon. I think this is wrong. We have to make clear the thing that we really do, that is our real and only reason for being.

JP: In other words, if you try to be one of these other things, the whole thing suffers.

PMR: Right. There are any numbers of people who do those things much, much better. We may do them, and do them reasonably well, but we do something in addition.

JP: You lose something when you restrict yourself.

PMR: When you restrict yourself to that alone.

JP: The architecture loses something. Do you see any technical development, such as the emergence and discoveries we've made in pre-cast concrete, as influencing the future of building? Do you see some technical changes like you mentioned in the sense of mechanical air-conditioning in terms of materials?

PMR: Mies van der Rohe has made most eloquent the steel frame in this country, and it's very difficult to see how that can be carried farther. However, the pre-cast pretension reinforced concrete member has hardly been touched. Its potentials have hardly been touched. Europe has done much more in this field than we have, partially because of the ratio of material to labor. If one were to make a prognostication, again, one would say that the aesthetics of pre-cast reinforced concrete will lead us to an architecture which depends on the play of light and shadow, as opposed to the architecture which depends basically, for its aesthetic values, on reflections which come from a curtain wall. This does not mean to say that the curtain wall is no longer meaningful as a dress for the steel cage. It does have meaning. But it's just that it's not the only way to do it. One of the things that we all long for is much more plasticity or depth in the treatment of the exterior of our buildings. This, I feel, will come to a large degree through the manipulation of reinforced pre-cast concrete.

JP: Does this mean that the role of the engineer like Nervi [Pier Luigi, 1891-1979] will be more important in architecture, or is Nervi important because he is an engineer or is he something else?

PMR: I don't care what you call people. But Nervi is very important. He's an engineer, but he's also an architect in many ways. It does mean that Nervi and his type have true significance, especially for us right now.

JP: The creative engineer who has had an architectural sense. In these kinds of buildings, this kind of a man will play, work hand in hand with an architect more and more or be an architect.

PMR: Yes.

JP: Does this relate to your own interest in construction? Do you think why you're interested in it is because you do believe in this kind of honesty of the construction, and the interest in that the construction actually work.

PMR: I believe that it's very easy for the construction to get away from you and to get out of hand, that you become a kind of structural exhibitionist. To give you an example, we once made a cottage which had on it a 22 foot span, but we used a steel catenary curve to do this. This was out of scale altogether. All we had to do was have a 300 foot span, this would have been fine. I really think that the formation of meaningful space is the end to be desired, but that space does have to be formed in some way. The method of spanning space is one of the problems of architecture which has been with us ever since the beginning of time. I only mean to say that the use of materials plays a secondary role to the manipulation of space.

JP: Nevertheless what you want to do with that space will then determine how you are going to use those materials, and what materials you might choose to use. Reinforced concrete is a technical development, the discovery of its greater potential which is just revealing itself. I'd agree with you that we're only at the beginning of this. There's no clear resolution of this yet. How do you feel about forms that arbitrarily are done to be dramatic? Is there a place for exhibitionism in architecture?

PMR: There is a place for exhibitionism in architecture, for recreational type buildings. Or exhibitions. But it is very limited. The current emphasis on originality on the one hand, extreme originality on the one hand and curtain walls ad infinitum on the other hand, is deplorable.

JP: In other words, it's your hope that the future of architecture will be someplace in between there, that it will neither be as plain and as box-like, into one style or one sentence.

PMR: What we really need is a sense of hierarchy of building types. Traditionally the place of worship, the palace, the governmental building, the gateway to the city were given real emphases. They were made very plastic. They had the most adornment; there was the greatest play of light and shadow. They were sited so that you could see them from the greatest distance. The buildings for finance and for housing and so forth were background buildings, so to speak. They were relatively quiet. This set up the whole hierarchy of building types, which was made into a meaningful whole which was called the city. Today, this has been turned upside down. Industry has quite often the most money to spend, so these become the dominant buildings. The church quite often is lost in the shuffle. At the University of Mexico there is a building which tends to dominate that whole campus, which merely holds a machine. Our whole sense of symbolism is upside down. We need today perhaps more than any other single thing a hierarchy of building types and this has more to do with where the most advanced structures should be used. The most advanced structures which tend to call the most attention to themselves, should be relegated to truly important buildings. Not every hot-dog stand should be a hyperbolic paraboloid, or whatever.

JP: Maybe one of the things we like about Washington is a little of this sense. The Capitol tends to be...

PMR: Right. The fact that the Capitol is the dominating element, and that nothing is really higher, in the immediate vicinity anyway.

JP: Even the monuments tend to be the other interesting buildings, whereas of office buildings are rather anonymous.

PMR: Every age which has produced architecture worth talking about has had its hierarchy of building types, all of its own. Today, we do not have this. I would say that this has to do with the whole environmental aspect of architecture.

JP: Kind of an anarchy where even the individual house might be the most important work.

PMR: Can you imagine asking a half dozen of the leading architects in the country today to build side by side. What would happen? Well, indeed, the Interbau [International Builders Fair, 1957] in Germany has shown this very eloquently. The world's greatest architects built a series of housing displays, and each one perhaps has meaning. But when you put them together, there's sheer chaos.

JP: This is one of the problems of Lincoln Center [New York, NY, 1959-1969] and they are all of one group even.

PMR: The Idlewild Airport [Kennedy International] will be another example of this.

JP: Then you're not even taking the full spectrum. Frank Lloyd Wright does not have a building there, let's say. It's not the full spectrum of what's happening to America. There's no shingle style, so even there you have it somewhat and still its chaos. Is there a social development, do you think the urban, the whole explosion of the city, or the atomic bomb is going to have an

influence on the way people build and design? Is there any kind of social change that is happening to us? The population growth, etc.

PMR: The population growth and the fact that within the next decade the number of automobiles will double, whether we like it or not, the relationship to public transportation, and the desire that every American family has to have a single-family free-standing dwelling, on its own plot of land, all of these factors are determining ones. The existing patterns do not prove to be satisfactory, and we probably are going to have to modify this thing which we call the automobile, or tame it. But we are not yet willing to pay the price. Every European says we must have smaller cars, and develop areas where the automobile cannot penetrate. To a degree, I think that's right. Except the American is so much in love with his automobile that he is not going to leave it too far behind.

JP: There's no indication in all truth that with the rising economy that the European isn't either. You know, in quite all honesty.

PMR: That's right. It's all right for him to say it as long as they are not concerned. I haven't yet found a European who is willing to give up his car. He also wants to come to the front door, too.

JP: In Germany, as soon as the worker's income rose to the point when the volume was needed, they all want a car too and not a bike. These problems are not so different when you're in the different circumstances. What in your opinion, are three of some of the greatest works of modern architecture and why? Do you have any works that you feel are some of the greatest and most significant works of modern architecture?

PMR: I feel the Le Corbusier's Villa Savoie [Poissy, France, 1929] demonstrated the sense of continuity of space, the unfolding space, in an admirable way. It also stated eloquently Le Corbusier's feeling about man's relationship to nature, which has proved to be prophetic.

JP: And quite opposed to Wright at that point.

PMR: I think that Mies van der Rohe's 860 apartment houses in Chicago [ 860-880 Lake Shore Drive, 1948-1951] elevated the steel frame for the first time to the heights of great art, and because the steel cage is very American, such a building could be built only in the United States. That it has true significance. It must be noted, incidentally, that the steel frame is not what is actually shown, but only symbols of the structure are shown.

JP: This doesn't bother you?

PMR: No. Symbols of structure have been used ever since the beginning of time, and I don't know why all of a sudden there's anything wrong with it. I think that Taliesin West [Scottsdale, AZ, 1937], of Wright's, is a truly significant building because of the sequence of space which he has managed to achieve as well as the relationship to the site and the whole use of materials, the juxtaposition of the compression of the stone work and the flying quality of the trusses and beams.

JP: The canvas quality, too.

PMR: The light coming through the canvas. The whole manipulation of the natural light.

## Part 2

JP: We're recording Paul Rudolph in his home in New Haven, Connecticut. Paul, what would you say is the place of aluminum in modern architecture, or does aluminum have a place in modern architecture, to be blunt about it?

PMR: Oh, I'm sure it has a place. Every new material as well as the old ones has a place. I'm fascinated by the fact that aluminum can be had in sheets, and can be manipulated in various ways to add to its strength; shall we say by curving one adds to its strength. The whole business of having sheet materials in the first place is new and the aesthetics of that haven't perhaps been worked out as much as they might. I also think that the use of aluminum to cut the glare and direct rays of the sun have not perhaps been explored as much as they could.

JP: Yes, as a kind of sun-ray controller, there is a light weight quality that enters into it. This is an area where more will be done.

PMR: Yes, that's what I mean. If you put up a glass wall, you have to get rid of the sun and the glare. What do you use to do this with? And a light-weight material such as aluminum is very sympathetic. Also because it is very workable.

JP: And mainly because maintenance is fairly good.

RUDOLPH: Yes, especially when its porcelain enameled.

JP: What about that aspect? When I was down to Reynolds to see the new building by Skidmore, which is quite & good building, in the same Connecticut general vernacular, they said that at first the aluminum industry, and they themselves, were very opposed, or were reluctant about the use of porcelain enamel because they said, that after all that is glass, that's not aluminum. And our best thing is to use aluminum. However, they have completely swung round on this thing, and they now feel that one of their great, well that they used to try to fret and worry about anodized colors. You know. How do you feel about anodized color?

PMR: I am not very sympathetic with the anodizing, partially because of the colors that are available, partially because they do seem to fade slightly, and although I like in principle the idea that it is aluminum finish rather than an additive finish such as porcelain enamel. But at the same time the porcelain enamel really seems to stand up longer. We just worked on a building where the owner wanted it to last for a hundred years, and so we ended up using porcelain enamel.

JP: Because you knew that the color was fast in the glass? What about color in architecture: We have a room here where the whole house is quite a natural color. How do you feel about color in architecture?

PMR: Well, I'm all for color in architecture. The whole question is how one gets the most effect out of color. Strangely enough, by using the least amount of color usually you get the most. Also the whole question of how you use color inside as opposed to how you use color outside. And also the fact that in certain regions some colors and intensities and amounts work, whereas in other regions they don't. For instance, I quite often fly from Boston to Miami, and it's wonderful,

the whole change in the realm of color. It has to do with the quality of the sunlight.

JP: The sunlight and the weather; and all this other thing enters into what one could do. You can't really automatically transplant those brilliant colors.

RUDOLPH: What you do in one place you don't do in another.

JP: To this extent there is a certain regional factor that enters in. You said sheets. What about if aluminum were used structurally in architecture, like in the aircraft industry.

PMR: You know there's an interesting thing about using aluminum structurally. Usually it ends up looking much heavier than you want it to, and this is because aluminum is not as strong as steel. We become accustomed to the fact that steel takes on a certain size. And when you see a metal used, and see it bulkier, you think that it probably wasn't a very good engineer. It doesn't have the elegance, you see, that steel has.

JP: Even though the piece itself might be lighter, visually it looks heavier.

PMR: Right.

JP: In fact, it almost looks wrong.

PMR: Right. Now, in the aircraft industry, the lightness is of course of the utmost importance. But usually, Buckminster Fuller [1895-1983] aside, lightness in architecture isn't very important. Actual lightness. The actual weight isn't very important. The appearance of lightness is of course an aesthetic element which may or may not be desirable.

JP: This is a good distinction. In terms of aircraft, it's directly related to payload. In other words, your whole principle is based on this light-as-possible for the purpose. But in architecture, lightness is not very often a factor. Maybe in a bridge it might be, or in some tremendous span it might be a factor. But not very often. What's his name that used to be with Gruen [Victor, 1903-1980] out on the coast, Cantini. He maintained that this easy analogy between the aircraft industry and architecture is not very valid. And he said also like curving you might do well to travel through the air. It doesn't apply in the case of a still object.

PMR: We tried to use aluminum, even in some furniture design. And it inevitably gets to be sort of bulky. Incidentally lightness in furniture has much more meaning — lack of weight in furniture has much more meaning.

JP: Because you do have to move it. Lack of weight in auto parts, because if it's related to the Volkswagen or something like that where they use aluminum casting to the extent they're using more, there again is a relation -- you have to move that much weight. But in furniture, you might remember that Harvey Ural chair, which I thought when you mentioned "sheet", was one of the few instances where it was kind of interestingly and imaginatively used. I don't know if you liked the chair, but I thought that it was at least aluminum applied. What about sheets? What about in residential buildings, for instance? Have you ever used it yet?

PMR: We have not used aluminum in sheets. We used other sheet materials, again to create strength. Aluminum exposed on the interior in a residence has possibilities, of course. It is that you have to keep it from seeming like the local diner, and this is not so easy. I feel that perhaps it has more use in other types of architecture than in residential, residential interiors.

JP: Unless they again put veneers with it like with the porcelain enamel by adhering it or combining it.

PMR: They are really strong connotations that you are dealing with. They cannot be ignored.

JP: I think you're right about this. In other words, where some people say well, that's just because people make that association, but it's valid that they make it. I know the glass block people are exploring this problem also, and they were saying it's associated with juke-box architecture and so forth. And I said that it's true, and it's not necessarily inherently evil, but you have to recognize, that it's a fact.

PMR: You know we live by symbols, to a much greater degree than most of us recognize. And there is a certain symbolism involved with aluminum, whether you like it or not. And that must really be considered.

JP: And where it's used in certain occasions, it comes through very strongly, whereas in some other it might not enter in it at all. Have you seen a building in aluminum that you like? Is there any use of aluminum that you think was well used, like Manufacturer's Trust's [New York, NY, Gordon Bunshaft of Sidmore, Owings and Merrill, 1954] use of aluminum would be one example?

PMR: As a sheathing material for linear elements, such as the Manufacturer's Trust, then I think it is excellent, because the whole reflectivity has been brought out. It's when it is in a great flat plane that the aesthetics of reflective materials become very, very difficult.

JP: Go into that a little more because you said the rise and the fall of the curtain wall. Now it has been used a lot in that area, and it's questionable to a degree if this is the real long-range future of this material. How about the curtain wall in relation to aluminum or any of the materials?

PMR: Well, because implicit in the curtain wall concept is an emphasis on a grid of one kind or another or a linear element. The linear element has to have depth in order to have structural strength. The fact then that you are seeing the aluminum at right angles to each other means that the architecture of the reflectivity is increased. In other words, the light strikes it and it's faceted and this is very satisfying. You get the most out of a light-reflecting material.

JP: Like cutting a diamond, you might say.

PMR: So that seems quite appropriate to me. And also aluminum in the curtain wall has meaning. First of all, because of its relative lightness. But also the fact that the curtain wall by its very nature tends to be divided into relatively small areas. So it is broken sufficiently often.

JP: So you don't get this other effect.

PMR: Also, the curtain wall is seen primarily from the outside, not from the inside. You are more aware of only the glass of the curtain wall.

JP: From the inside.

RUDOLPH: From the inside because curtain walls are usually used in those buildings which are basically cages, and office-type buildings and apartments, and the furniture is quite often against the spandrels.

JP: One of the places, of course, where aluminum has found a real place is in big sliding doors and sliding windows, and so forth. Have you had any experience in aluminum in this sense down in Florida?

PMR: No. I shouldn't say no. We've used sliding aluminum doors.

JP: Which is the one place where its light weight again is a factor because of the movement.

PMR: And the weathering is of the utmost importance. In Florida, the salt air, of course, is always with you and steel sliding doors simply don't work at all.

JP: So this is a place where, in other words, it has found a natural and functional place and works well

PMR: Aluminum works really well when you are moving something.

JP: That's what it gets down to, eh? When it's moving, it works well and you don't sense this other thing of weight or anything like that.

PMR: I might add that we have tried to work out in aluminum and paper honeycomb core material a wall which would pivot at the top and lift up horizontally. There again the moving quality has meaning. It so happens that we have not carried that out in aluminum. We have carried it out in plywood.

JP: But nevertheless that would be a natural area where investigation might be done.

PMR: You see, in Florida it becomes important because sometimes you want a cave. You want it quite enclosed.

JP: It can get that way.

PMR: And sometimes you want it very much open. So my feeling about it is that, quite often in that kind of climate, the walls should literally lift up, and become the overhang. It is four things. It is the wall, number 1; number 2, it is the ventilating element; number 3, it is the overhang; and

number 4, it is the hurricane partitioners.

JP: Shutters, in other words, to lock it up. In this area, they are exploring more and more into the notion of panels and cores, even, for house construction etc. Methods, you know, so that you really envision a house this way. I know the aluminum people are very interested and are exploring more and more the core notion. And this again would fit with your notion, that these should be movable elements, just like in hangar doors. They've had some huge hangar doors in aluminum because again this notion of them for airplane hangars where they lift or swing or something like that.

PMR: Do you know our building for Wellesley incidentally? It has porcelain enamel aluminum screens on the outside of it, about 210 feet of them on two sides of the building. Its two stories high. This has a kind of built-in ivy. Very, very lacy. Very intricate in its design.

JP: Now, porcelain enamel. Are they enameled?

PMR: It is basically a series of strips which are bent and cut and fastened together, and then enameled, as an entity. It takes on a very faceted nature. Of course the basic reason it's been used is to cut down the glare and keep out the sun.

JP: Which is a perfectly good ivy too. I'm going to ask you a little more on the other tape. I wanted to ask about the filigree look. Tell me a little about school. For instance, do the students get an opportunity to work in different materials? Do they plan in different materials? Or, for instance, like Paul Schweikher [1903-1997] was saying; he found that wood was so much easier to work, and so more available that he has had kids work sometimes just entirely in wood, because he said it's something you can really work out many of the problems of many materials and just use this one. On the other hand, when they work in school, would it serve a useful purpose, if, say, Reynolds or somebody were to supply schools with samples of all kinds of different extrusions and things like that to view — or would it really serve any useful purpose?

PMR: This is a real question, I think. One of the most difficult things in the school of architecture is to get people to think in terms of materials, and what you do in one material as opposed to another. This takes a long time to even begin to understand. And I think it's at the very heart of the problem, I might add.

JP: Schweikher said that sometimes they just think in terms of cardboard.

PMR: Because they make models. That's right. They really do. For me, it is better for people to think about the innermost potentialities of any material, and that you do one thing in one material, that you do another thing in another material. And that the dimensions of one material tend to be certain things, whereas the dimensions of another material are quite different. One of the things we have done here at Yale, just this past year, was to give a very simple planning of a very simple building, where the plan was very unimportant, and ask for three different solutions; one in steel, one in reinforced concrete, and one in wood. We didn't want any hocus-pocus about it. We wanted to know simply by observing what this building was made of. Any building that's worth anything, one does not have to be told what material it is. One can tell by its innate form,

how it's built.

JP: So that anybody should be able to look at these and say, this is the steel one, this is the wood one, and there shouldn't be any confusion. How well did it work?

PMR: I am sorry to say it didn't work as well as I had anticipated, and part of the reason, I think, with this particular experiment, was the fact that it was the first project of the year and it was the master's class and people coming from everywhere, and it was very uneven class. This coming year we are going to try doing it the end of the year and see if we can't lead up to it. It's a much more difficult problem than you might think, on the surface. I think it has tremendous potential; it just hasn't been developed quite as far as it should. The questions of whether extrusions, aluminum or otherwise, of all forms of aluminum in samples, how much meaning this has for students of architecture, I'm not absolutely sure about this. I would like to think that a good sample room has great meaning for students of architecture. But I'm not sure it really does.

JP: And also it's an expensive thing to house and to maintain.

PMR: And to be sure you don't lose it.

JP: Like a library, in other words. To run a library of material would be a difficult thing, with budgets and all. You are not certain that it would be as useful as it might offhand seem.

PMR: I'm not sure of this. The basic point which we as architects are interested in is people develop a feeling for materials. I'm of the opinion that a summer's work on construction is much more meaningful.

JP: By a summer's work, you mean actual on a job.

PMR: On a job. Yes. Or making things, be it furniture, or even models, or whatever. I'm not sure about this sample thing. I may really be wrong. As you know, I'm new to the academic world. So I'm not really sure about it.

JP: In other words, two years from now you might say that this is precisely a useful and helpful thing.

What about students today? Do they come to you? Do you find them more prepared today? Do you find them further developed; do they have more clear-cut ideas of what they want to do? Is there a difference in students today than when you went to school? Maybe at Yale might be a different kind of student.

PMR: Well, here at Yale we're very lucky because we're one of the two true graduate schools in the United States. Harvard being the other one, and we take only people who have Bachelor of Science or Bachelor of Arts degrees. And this means that our students are somewhat more mature, and much better prepared. There may be a great deal wrong with our faculty; I don't know. But I don't see there's anything wrong with our students. We have really top-notch students.

JP: Is that right? In other words, if you're not doing it, it's not because you're not getting students.

PMR: It's as simple as that.

JP: Do they know, for instance, Paul, when they come to you, do they know Le Corbusier, Mies, and so on, do they know all this kind of thing?

PMR: It varies. They tend to know, yes.

JP: The point is its really becoming part of our culture, and to that extent they certainly know it.

PMR: Most of them have very extensive backgrounds in the history of art, as a matter of fact. Sometimes painting, sculpture.

JP: I see. In the whole field of the arts. In some cases their fathers or relatives or somebody were interested in architecture.

PMR: Yes, the number of students we have who are sons of architects is astounding. Also, we have a great many transfers from other schools.

JP: You would say, certainly then, that you are working with students who are prepared.

PMR: Of a very high caliber. We are limited, the whole school including the planners, to 160, and we have many, many more applicants. So we really get the cream of the crop.

JP: Do they tend, in all fairness, to reflect, for instance, the current dean, his thinking? Is this bad that they do? Or is it even inevitable? I mean I've been to a lot of schools.

PMR: I think that every student should have a sense of direction. I don't mean by that that what the students do should reflect in any way what the head of that school might do himself. It's the principle of the thing that is of importance, and we make a real effort to try to clarify not only what the three leading architects now living have done, the principle of why they've done it, but also all through history. And this does not imply that the magazines and what comes out of them doesn't influence the students. It does. The magazines, I think, are sometimes are our Vitruvius. But the intent is not that the students follow what the head of the school may think. We go out of our way to influence them not to, we really do.

JP: That's probably true in most of schools and yet the influence also is there that the ideas should have a sense of direction, that a school would be different, naturally, if it was under one chancellor or whatever the head of the school is, under one president, than it would be under a different. In other words the head of the school of the whole university or the head of the school of architecture or the head of the department of history is going to have some impact on it or there's something wrong, in a sense. This is probably more something one can sense more in visual fields than one might in geography, or something like that.

PMR: One doesn't think that just anything can go. There have to be real standards.

JP: Do the students tend to work hard, would you say?

PMR: Oh, I would say yes.

JP: I think all students today are working hard. Have you visited other schools, Paul, during this time? Have you had a chance to talk with others, abroad, for instance?

PMR: Well, I've visited many schools. I acted as a guest critic in about dozen of the leading schools in the United States between 1952 and 1958 when I came to Yale for anything from two weeks to as long as three months. I have visited schools abroad, but I've never participated.

JP: Has this thing been an interesting and even an enriching thing for you yourself: That you made a move like this? Do you feel that it has been a good thing?

PMR: For me it is very enriching. I am interested, you know, in the theory of architecture, as well as in practicing architecture. And the two things are parallel, and it's important for me to stop every once in a while and try to assess what it is that's really going on. Also, I find that talking about architecture with students is a very stimulating thing. And the students quite often make you put into words things which you never get around to trying to do, or analyze. I get much more out of being connected with the school than any of the students do. It's extremely stimulating.

JP: And by vocalizing your ideas, you tend to have to pin them down as to what you really mean.

PMR: To clarify them.

JP: Very good. I think that's fine for this.

