Berkeley Lecture, 1966 Thoughts on Architecture and Personal Expression: An Informal Presentation to Students at Berkeley

Author(s): Louis I. Kahn

Source: *Perspecta*, Vol. 28, Architects. Process. Inspiration. (1997), pp. 1-33
Published by: MIT Press on behalf of Perspecta.
Stable URL: http://www.jstor.org/stable/1567188
Accessed: 27-12-2015 15:53 UTC

Louis I. Kahn: Berkeley Lecture, 1966

A Note on the Transcript **Ellen Morris**

The transcript of this lecture by Louis I. Kahn, given at the University of California, Berkeley, is published here in *Perspecta 28* for the first time. Transcription from the original tapes of the lecture was undertaken by Edward Levin, with my assistance. The poor quality of the original reel-to-reel recording, together with Kahn's staccato delivery, freewheeling grammar, and strong Philadelphia-by-way-of-Brooklyn accent, all impeded the process of transcribing the lecture. In the end, however, with the exception of a break in continuity when one reel was replaced by another, plus no more than a few scattered instances which ultimately proved impossible to decipher with certainty, both of us are confident of the accuracy of the results. Sophisticated audio technology may someday clarify the few omissions in the lecture (noted in brackets), although none of these gaps is serious enough to impede the flow of ideas.

To the best of my recollection, Louis Kahn delivered his lecture wholly extemporaneously. No one can say what Kahn himself might have added, deleted, or otherwise modified in this transcript had he himself been given the opportunity to do so. We have therefore sought to transcribe the full delivery, replete with Kahn's half-sentences and false starts, although we have chosen to eliminate his occasional struggle for words, when such words are merely repetitions, and we have chosen to delete from the final transcript passages involving fumbling with microphones or slides. Although these deletions have no bearing on intended meaning and, instead, facilitate a much smoother reading of the lecture, they are admittedly made at some expense to the sound of the lecture; that is, to the sense of Kahn attempting to clearly formulate his thoughts extemporaneously. However, whenever pertinent to intended meaning, the many nuances in Kahn's spoken delivery are conveyed by liberal editorial use of single quotes, wordspacing, and italics, meant to approximate the impact of the actual lecture.

The original tapes of the lecture have been placed on permanent deposit with The Getty Center for the History of Art and the Humanities, in Santa Monica, California, and a cassette copy has been furnished to the Kahn archive at the University of Pennsylvania, in Philadelphia. Also placed on deposit at The Getty Center are tapes of a lengthy seminar given by Kahn to students at Berkeley. The date and nature of these seminar tapes have not yet been determined, and a complete and accurate transcript has not yet been produced. This seminar may or may not be associated with Kahn's visit to Berkeley on the occasion of this present lecture. It may result from a visit by Kahn to Berkeley subsequent to this lecture, for Kahn visited and spoke at Berkeley in April and again in November 1968 (these tapes may relate to one of these visits). Future scholarly inquiry is necessary to clarify this matter.

I wish to note here my gratitude to the editors of *Perspecta 28* for the opportunity to publish the transcript of this important lecture. It is my hope that it will add yet another dimension to Kahn scholarship as it becomes assimilated into the corpus of literature on or by Kahn that has already been published. It is equally my hope that this lecture will help shed some light on a significant debate in the history of twentieth-century American architectural education, illustrated in the ideological foment of Berkeley at the time, and in particular upon Louis Kahn's position relative to these issues.

Los Angeles, 1992

[a round of applause greets Professor Kahn on entering the lecture hall]

Berkeley Faculty: **I think your applause is ample demonstration of the fact that no introduction is needed, and that we would only like to say to Professor Kahn, to welcome you here and hope that you come back and visit us often.**

Professor Kahn: Well, I feel peculiar in front of this chemistry desk because I flunked chemistry consistently, but I don't know how I'll do this time.

I understand that you have a *great* student body ... and that there's much concern about the way the architect ... is to exercise ... his work through life. I can't talk for everybody ... I can only talk for myself. On coming to this – I guess it's called an auditorium, right? I heard there were many directions that people are taking in the thinking about our profession. All I can say is this; that architecture does not exist.

Architecture, per se, does not exist.

Architecture is a spirit.

Architecture knows no style, knows no method.

Out of the blue, you might say, which can be, in more specific terms, said to be out of the *enclosures*, warm enclosures: as though ... a man behind a wall, who felt very secure, and loved the wall because ... it protected him. But he was many years behind the wall, and he wanted to look out, since, no, he did not feel that the wall had to continue its protection, and broke a hole through it, and the wall cried. It said, 'What are you doing to me? I'm a wall. I helped you so much during the ages, and now you defile me with your axe.' And the man tried to apologize, as to say, 'But I want to look out. I think you did me a service, I do admit, but I do want to see the *sun*. I want to see somebody else.' And soon the opening became an *ordained* thing – something that belonged to the order of the making of the wall. A lintel was put over the opening, the stones were smooth ... at the opening so that the sun and the light would come in more evenly, and the wall became very proud ... that it could be part of such elegance.

And from it grew ... the wonder of the column, which was – the rhythmic – positioning of support and opening. And we're still living on the wonders of this revelation.
It is ... so remarkable, in my mind, *that a temple – like the Parthenon – could come to man without any indication of its shape, in nature*.

That's a *marvel* of architecture to me; the fact that these wonderful things exist, and they existed when knowledge was almost nothing. And we still refer to the wonder of St. Mark's: that is to say – the square, San Marco. There isn't a city planner who, with all the statistics and everything else, who doesn't refer to *it*, you see, as a kind of example from which ... one must refer. It's *that spirit* which I think is the most important thing to serve if you're an architect.

But there are other aspects of architecture. There is the *profession* of architecture, which is quite different from being an architect. The profession has definite demands: of service to the client, technologies (as distinguished from sciences), strength of materials, knowledge of all kinds that must enter the consideration of the making of the building. But all of it is really very minor.

The most minor consideration is the professional consideration.

I said that architecture does not exist, and I really mean that.

But what *does* exist is *a work of architecture* – yes, which a man makes (which, by the way, I don't think very many *can* make). If it *is* made by many people, it is hardly a work of architecture. It probably is a very good and competent *instruction* for building, but can never be a work of architecture.

This, then, is made: a work is made, which, if done by a truly great man, he would in all modesty offer this to architecture, hoping that it would become part of the 'Treasury of Architecture' something in the spirit to which the Pantheon belongs, to which the Parthenon belongs, to which the great works of the past belong, and many of the works of today's outstanding architects.

I hear much about *machines* taking the place of men. I think it's the greatest nonsense in the world! – the most colossal nonsense to think that anyone would believe that a machine could be anything but a 'brain' – never a *mind*! But maybe a superior brain, yes, I do admit that could be, but never a mind.

A mind is a singularity.

There isn't one mind like the other mind ...

If you would get the most competent program from a machine, of instructions, I am *positive*, giving this to ten architects, you'd get ten different solutions. That can't be anything else, unless you were mesmerized by some kind of foreign influence, like 'LSD' or something like that.

[audience laughter]

I think it must be *assumed* that a building, when made, is a 'solution of the problem': and not to think that you are doing so marvelous a job in doing *that*. Because it's probably the most easy thing to do – if you have the predilection for it. The reason why some deviate from this is because the program *itself,* is not worthy ... to be extended ... in the form of a building.

Very simple examples: you get a program of a school, and can you tell me that a teacher says the same thing in a room in which thirty are, as he would when he had but four near him, close to a fireplace, let us say, – and just a nice, intimate room, smoking a pipe ... and a dog nearby? He just don't [sic] say the same things.

A school is an environment of spaces where it is good to learn, where even the corridor must be changed into galleries, because galleries then become the only classroom the student has. There he meets other classmates. There the boy who didn't know exactly what was said in the classroom can ask his fellow students what was said – something psychologically very important to a man: to know that he can speak on a level of the student who is like his own age, and those who are teaching.

It's an 'environment.'
Can you put this in a machine and get an answer? No, you can't do that.

A man has to realize that suddenly one element of architecture, 'the gallery,' is an important part of 'School' – something which is not in the program at all. Do you find a gallery in a program? No. You will find a *lobby*, but you'll never find a 'Place of Entrance.'

Will you find written into it ... that every space must have natural light, and every space must be in light, like the shape that's chosen? *Can you say that a square room is in the proper light when it only has one direction of light?* No. That's Architecture.
But if you want to include all building in architecture, then you haven't got Architecture at all.

A work of architecture is an offering,

... as a painting is an offering. To understand the prerogative, the nature of a living work is terribly important. I must use examples which I've always used, because I don't think up ones every day, nor do I talk every day. (That'd be pretty bad, if I did.)

As I tried to say, Giotto, as a painter, painted skies black in the daytime, and dogs that couldn't run, and birds that couldn't fly, and made doorways smaller than people. And the sculptor can make square wheels on a cannon to express the futility of war. But an architect has to use round wheels, and he has to make doors bigger than people. Does it make him less of an artist? No ...
His prerogatives ... are different.

A space ... 'architectural,' as is indicated by the columns of our early architecture,

the structure ... is the maker of light

... the opening, you might say, for light. This, if you think in terms of the times when this was almost miraculously discovered, or not even, let's say, consciously in the mind of the architect (who, like Icthinus, would think in terms of the columns as being beautiful supports for a temple, that merge out of the wall never conscious, maybe, of the fact that *light* is what he actually got with his columns) – a rhythmic composition ...

of light ... and no light, light ... no light, light ... no light,

... and as the columns spread apart, he had an *immense* amount of light. And then your problem is, what do you do with all this?

If you consider it [light] even more immensely as being that which is three hundred feet away, you see, in which these, say, supports become events in the building of a different nature than the column entirely, a kind of station. Is there any reason why you can't build a Renaissance facade that covers the thing as a facade? Or even draw a building, you see, which encloses such a large opening, and build it of stone, if you like?

There's no reason why not. The great advantage was the making of the span, which was required, and the enclosure could be actually an *office* building that supports the large span. The tremendous openings [one has], architecturally, if only you think of it *architecturally* – and *not* think of it in terms of solving problems.

Because if you were to do this, you would end up with nothing but curtain-wall architecture, or some other damn thing. I don't know what it would be – but it wouldn't, certainly, be architecture. You'd be satisfying just very, very meager, cursory things.

The reason why I speak to you about this (because I didn't intend to speak to you about it at all; I just heard this only riding up [to the campus]) ... I heard the problems of the school. And I think it's exciting, really, that you have a kind of revolutionary atmosphere, you see, in the school. *I think there's nothing more important to a college than to feel the revolutionary spirit that exists everywhere*. But if the revolutionary spirit is, let's say, if you're revolutionizing in Spain for America, then I believe it's misguided.

I believe that it's really [important that] – you're revolutionary about *Architecture*, you see, and not about some other thing which is *not* architecture.

I'm so mad!; you have no idea!

I can't express – *anywhere near* express – what I really *feel* about any kind of thinking in the direction of machines that would apply to architecture, *except* ... in the feeding of an architect with imagination ... and with a sense of composition ... of new elements, and to know what they are. And you need to know what they are, so the clearest mind, or, rather, even the clearest *brain* (which a machine could be)

... but as soon as it enters the *mind*, then something else happens.

I don't believe you can design for 'environments.'
It's *another* thing – I dislike the word very much: '*environmental architecture*,' or '*environmental design*.'

[audience applause and laughter]

I think, clearly, you can't design '*an environment*.'

[audience laughter]

You can't do that!

Did Mozart ask society what he should compose? ... Of course not. He composed, and society became a different thing.

The architect makes a work which inspires society to take a different turn ...

That's true of a poem – it's true of a painting. It's true of a painting: it gives you a different sense of point of view about things. You certainly realize that a painter can really paint a red dress when he sees a blue one. You wonder why he does it, but still, you see: well, he really can – you see, he *does* it. Is he inhuman? Of course not. *Terribly human* – in fact, more so than those who are so amazed by it.

I believe that you could – if *I* were, let's say, on a jury, I would like to *not* talk about the functional aspect of the problem, whatsoever. I would assume *that*, in time – it will become a known thing to you, because you will – through the process of getting a building approved – find that you will be hit on every side if you do not make a building work. It just comes quite ... as a matter of the course of the design of the building.
If a jury could speak about the spirit of architecture, does it have the spirit of architecture? ...

Can you recognize 'the personal' in a man's work? ...

And *that* is, his *'offering'* to Architecture ... And can you recognize its responsibilities as a professional work? I believe it *should* be responsible. It *shouldn't* be something that's just helter-skelter, 'made' without consideration of the problems that's [sic] involved.

But it must be considered, however, as the *least important* of all, because it takes your lifetime to know that aspect of it. Because a man is born with 'what to do,' but not 'how to do it.' 'How to do it' takes a long, long, long time.

And man is always greater than his works.

And you want to recognize *that* aspect of the man, rather than that which has to be shown only later through the luck he may have, or the choice he makes in choosing the right office to work in, or if he gets the right kind of work, or he learns more quickly than others, is given more opportunity. All these things become 'food for how to make things.' After a while you make them with a kind of knowledge and rest and repose. You're not worried about *that* aspect, and [instead] you begin to worry about the other. The 'what to make,' you see, is always the big concern. And you're *born* with that, but you may never, ever, bring it out because you may not have the technical knowledge to do it. So, it's important, on all sides, to have all the tools for the opportunity to make that which really presents *you* in the end.

A man finds himself out through his work.

I just read recently, a little piece that Corbusier wrote in a little book that came out on Roman architecture – a new one – published here in this country. It had a statement which I liked very much. It was written in 1929, when most of us were – I know all of *you* weren't born yet, and ... I was pretty wet behind the ears, too.

He wrote that: "People accuse me of being a revolutionary, but I confess that I have only one master; the past. And I have only one discipline; the study of the past."

It is true today as it will be true thousands of years from now.
He wasn't speaking about the technical advances; he wasn't speaking about those things ... He was speaking about the '*spirit of architecture*': ... that which, by some miraculous thing about man, can make that which nature cannot make. Don't you think Chartres is fabulous? [unclear: In that sunlight?] Is it just the design? No. It's a tremendous outburst of human spirit ... *What else do you want?*

Is there a man alive, is there an architect alive who wouldn't trade all his richness, all his wealth, for being acclaimed for the littlest house? There is no such animal.

Well, again, I told you that I didn't have any intention of saying what I just said.

[audience laughter]

I just get this from thinking that you're a great group of people. And I really care for students. I mean, I really think that school is my chapel, you see. It's a place where I – if I have any purification, it comes from there; it comes from such a place as this. So that's why I think it's so important.

Hi, Pat: just looking at you.

[Professor Kahn noticing Professor Patrick Quinn, a former student, in the audience]

Projectionist: **The slides are ready, Mr. Kahn.**

Professor Kahn: The slides are ready? Good. It's good to be reminded that I have things to do. I want to make one remark about building in general, just introducing the slides, pretty much:

In planning, I feel that what stands in my mind as the most important consideration is not the sociological findings – the thing will *change*, like great streams ... But it is a sense of 'the institutions of man' – what, you want to ... 'support' ... *as a way of life* – that's what I mean by 'institutions.' They are deep-seated, this desire – these desires.

Everything that nature makes it records in what it makes, how it was made.

In the rock is a record of the making of the rock. Every grain of sand on a mountain is completely valid. There is no such thing as chaos; that's only in the mind ... but never in nature.

The record of how we were made is also evident. The fetus is a perfect record, a complete record, of how we were made – right from the very start. I believe it to be one of the most occupying of studies – [that] of human existence. We, as *conscious* beings, made our desire as well as the means.

The means is 'Nature.'

It's the tools. It is the way – it is the tool house of God: the desire *to be*, *to express*. To express, I believe, is the *raison d'être* for living: to express hate ... love ... nobility ... integrity. 'How we were made' ... we have access to, which probably the rose does not, though I believe the rose has consciousness of a certain type; every living thing has.

And we, through our high degree of consciousness, can sense something, or, rather, we are enthralled by how we were made. And I think all knowledge, all will to learn is only to learn how we were made, because if you knew it, you'd know all the laws of the universe. Out of this comes the inspiration to learn. Just think of it. How could you avoid it? If someone feels something ... that you don't, don't you want to know it? It's so natural. See, you're really here, assembled, as a place of learning, out of the inspirations of how you were made. Now, when you are given, entrusted, with a building, you are sure you are entrusted with one of the institutions of Man. If it is a major or minor part of it, there is no reason for building anything unless it satisfies an institution of Man of some kind, whether it's the institution of Government, institution of Learning, or institution of Home. They are all institutions.

There is nothing that one builds that is not part of some institution of Man;

... something that he institutes and wants to see continued. It is true of business; it's true of shipping; it's true of all things that are done, that you are involved in. And there are people who love even those things that you don't care for. They are inspired, you see, by just the same kind of ... feelings ... about existence.

I think the greatest of these feelings is the feeling 'to express,' which, of course – this is the real reason, I think, for living: to express the inexpressible; to express that which words can never find sufficient to express. It's a true sense of religion of 'in-touchness' with commonness with *a* commonness.

I am going back to the example of the school. Your concern should be how – how we – what is my opportunity, when I get this building, to express this institution of Man in a way which has *lost* its sense, of expressing it with spirit?

That doesn't mean that it [school] works; it means it has a spirit. It has *in it* the character of 'a place you want to learn.' It must have that character, and therefore it must have this feeling that ... the small space, the larger space, the lecture hall, the hallway, the entrance – all particularly belong to 'School,' ... and not to some other building. Everything supports it. Just think what a wealth of opportunity you have if you were to think of it this way ... 'cause everything that's made is wrong. There's so many things, you see, that have to be done. *Even a man knows that he can only go so far as an architect, others can go, farther ... in other ways.*

He knows, if he builds a house, he can never make a home, because a home is what the *people* make of this house. You can have a wonderful house and a poor home, and a poor house and a wonderful home. And my concern [is] with trying to find those 'Form Elements':

Form to me means the inseparable parts of something –

... the realization of the inseparable parts – it has nothing to do with 'design' whatsoever. *Design is only a means.* It's only a *way,* to express one ... little ... spark ... of what Form actually conveys to you. It's a realization of something that has an 'Existence Will,' and has a sense of its parts. I believe the temple I spoke to you of before, you see, *had* this kind of power.

And many buildings, in the wind, yet not dreamed, just wait for the *man* – not the committee, not the machine, not anything else, not a system, not a school, nothing – just for the *man* who ... somehow sees ... the emergence of something ... which was not there before. I believe the most dedicated position that a school could take is to look for those manifestations. And they're all around you.

I can think of twenty-five schools that could be built that would be nothing like the schools you have now. Schools which are based on beliefs of some kind – not just physical plants – beliefs from which a new 'Form Realization' can ... come out, and this is your beginning of 'Design.'

And this is really the same kind of realization that a forester had, let's say, who made the first axe. Could the

information have been put into a machine to make this axe? No. It had first to be *made*. *Then* you can put it into a machine as to how, you see, it reacts to other things: as to whether sharp axes, for instance, can be better than ... dull axes. You can put *that* in a machine. It'll give the right answer, too ... but that's all.

[Professor Kahn, now addressing the slides on screen:]

Now we'll go back to how it all started.

[Referring to the slides]

They're way up, aren't they? I'll never see *that*.

Well, it's so far away, maybe *you* tell me about it.

[audience laughter]

You know, of course, this is the Salk Institute, and this is the laboratory wing. I'm just about to start this wing, here, and this will start eventually, I hope – I have no great assurances, yet. But I just want to tell you a little story about – it had to do with the realization of what I *thought* was the becoming of a new institution, in that [Dr. Jonas] Salk, when we saw each other – he said he needed so much space, and that was about the *program* – the *extent* of the program. It had no other thing in it. I said, but I know: a laboratory is a laboratory. But he mentioned that he wanted to invite Picasso to the laboratory. His idea was not to limit it to just be the place where what he would call the biological engineers [would come], you see, but he [Salk] has an equal regard for all scientists. And this caused this: The actual requirement is this, these two boxes – this one and that one – but realizing 'the institution of man' emerging – something which is not the same as what existed before – and just because you wanted to make it a place where the regard for 'the being biological,' regard for such – for the psyche – was there. It wasn't all a matter of scientific usage. And when you deal with the psyche, you aren't dealing with science at all. You're dealing with something which science will never know anything about.

Therefore these studies, you see, are outside. They're also there for other reasons, because – after all – these laboratories, they're all souped up with all kinds of machines and pipes and stuff, you see, and they [the scientists] don't *need* that. All they need is a pen and a rug and a pipe, you see. So that's all they need; so why have them inside?, stuffed (usually) in very small spaces, because who can afford, you see, anything with decent living with all these expensive things around? So, I just put them outside, you see, in the garden. And then this was only, however, an arm of this building, which is actually the 'Unmeasurable Center' – the center of the unmeasurable – where *nothing* is measured, except maybe one jigger after another.

[audience laughter]

And these are, of course, houses for people who like to be near their experiments, for some ungodly reason, you see. It's true. (I know.) But the separation, you see, was important. If you put them together, the one worked more or less *behind* the other. So, I purposely put them one quarter of a mile away from each other.

That's only a humorous story. I'll just go through – well,

Next slide.

Salk was so taken with the distinctions between one and another that he helped *me* – the leader he is – and believed in what I had to say. He even believed it more than *I* did. Because, see, the laboratory is here – there and there – but that which serves the laboratory are these spaces between. This came as a result of many studies. And I had three studies [offices] over each other, you see, but he said, 'No.' He said you must have the study here, but you must not *think* of having the feet of the other scientists on the head of another scientist. And what he said to me was this porch, you see, also came out of the laboratory, as though it had to have its own garden, facing out from the laboratory. This has one, and this one below has one too: that bridging across – separating them. Also, by separating I was able to make a sun-shield [as] a *glare*-shield for the laboratories, so that they don't need curtains, you see. But I noticed a few curtains coming in. Because habit, you know, is a funny thing. This is the one thing where the machine could help. You see, the machine would say, 'No curtains necessary,' and then the scientists would [unclear: say, 'I ?] understand.'

[audience laughter, applause]

Next, please.

The first time I did this thing, I had this idea of having two levels of laboratories and a construction which would take pipes. And I thought this was really terrific. Then I found that other people had better thoughts on this matter, because knowing, you see, that the machines that serve the laboratory are multiple, and also that to crawl in the pipe space is really pretty cruel – not to the pipes, but to the people. And so the idea, then, became one of making a regular *floor* for the pipes, which I did in the other thing I showed you. That floor is nine feet high, and even there it's crowded, you know. The laboratory's eleven feet, the pipes are nine feet, the pipes want to spread out more and more. It's sort of a laboratory of pipes, you know; two laboratories, I mean – one for the pipes, one for the people. So this, maybe, was not a good solution, although it looked terribly pretty. We were paid for making this terrible solution and, and then we went into the other one, of course, and all the time I'm thinking that the thing is not as exciting, but, sure, that's very important. How did we even get that? It's a combination of studies – knowledge, too. But a part of it is your willingness to see the truth, and that's very important: to face up to the truth. My engineers, everybody, said, 'You're a fool for going into the other, because it's nothing but a box, just a box.' No. I felt that I had to get something out of this box, and I think I really did. And, as the subsequent slides will show, I'm very proud of this.

Next, please.

This shows the various levels, you see. The darker bands are the laboratory – pipe laboratories, you might say, and the laboratories in between. Now that building will last for a very long time, because you can make any number of changes without making any drastic changes of appearance.

Next, please.

Now you see the separation: there are your studies, and there are the connections, the stair connections to the studies. This is that walkway that feeds the laboratory. Now, I think this kind of thing could be interpreted many, many ways. But the separation, the *realization* of the separation, [is] for many reasons, reasons of pure economy (I don't mean budget; I mean economy – it's a different thing, economy). The budget's a deadly thing. Economy can be important.

Next, please.

I'll show you the various aspects of the separation. The separation is exciting, here. It really feels like getting away for miles from what you're doing, and still you're very close.

Next, please.

The service towers [are] in back, which take all the toilets and all the necessary things you need, you see. The laboratories are completely clear; they don't have any obstructions, whatsoever. All the services of the laboratories are in *these* buildings and, you call it the rear – actually, it isn't – I mean it's just a bunch of laboratories on this side, as the other – and you go downstairs to the lower gardens, here. And the next slide shows what – you continue the stairway down. And the next slide is – you go through this, finally, to get to the lower gardens. This wood has turned very much grayer. And I was disturbed about the color at first, but I knew, of course, that time would erase it, and now it's a very nice, brown, nutty color. 'Highly *nummy*!'

[audience laughter]

Next, please.

This shows what you go through, you see, to get to the lower gardens, which now I'm trying to finish. They were still left undone. But these are all pools. This is actually a trough for plants, and up above is a place for water. So, these are the studies that you see. Then, these, also the studies are up around the west side towards the Pacific.

Next, please.

This probably gives you a better view of the unfilled pools, here, which will cascade down to this one. And you'll sit there, and this will all be paved, and, here, these will be flower pots.

Next, please.

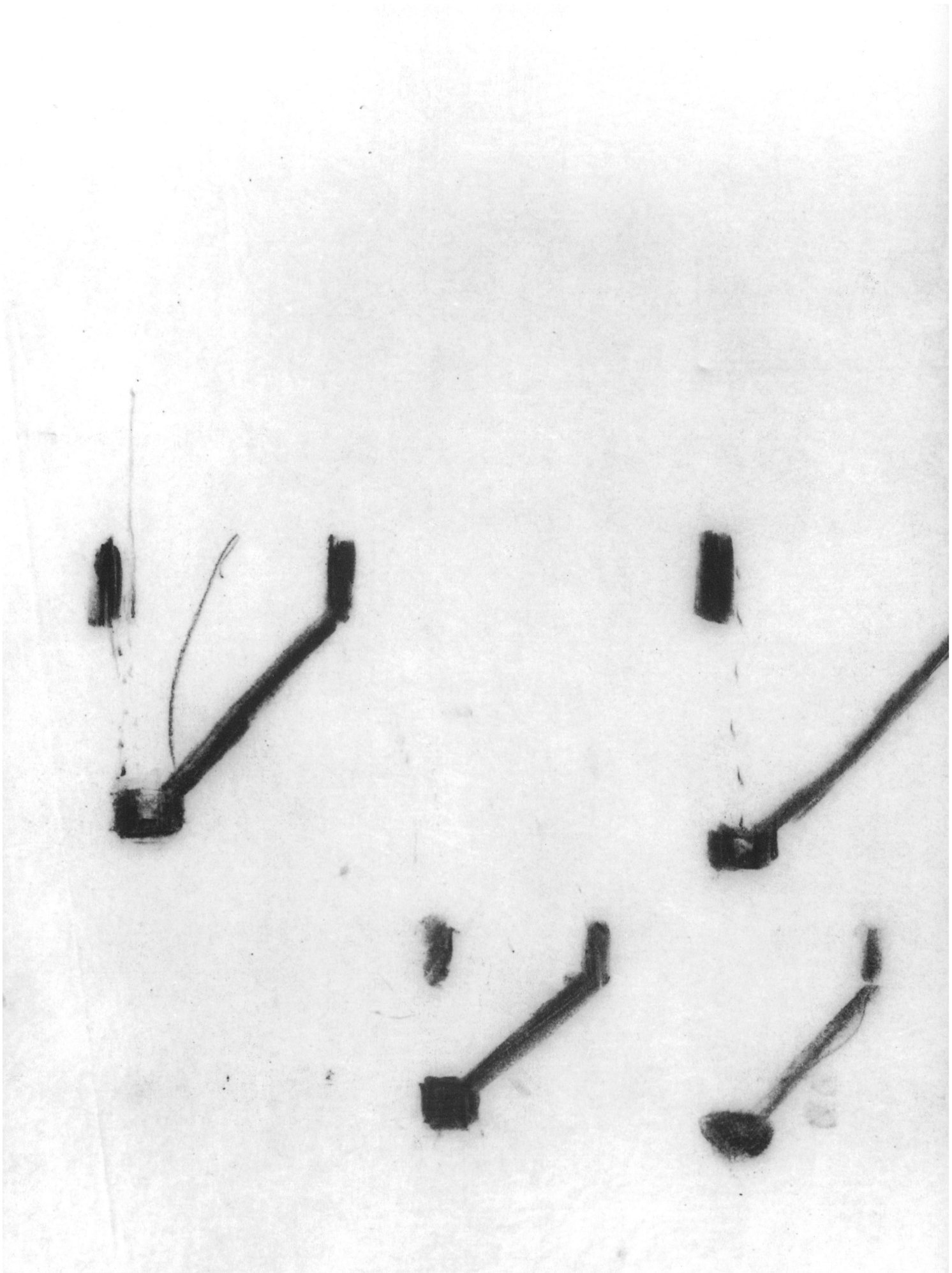
This is another detail of the lower section.

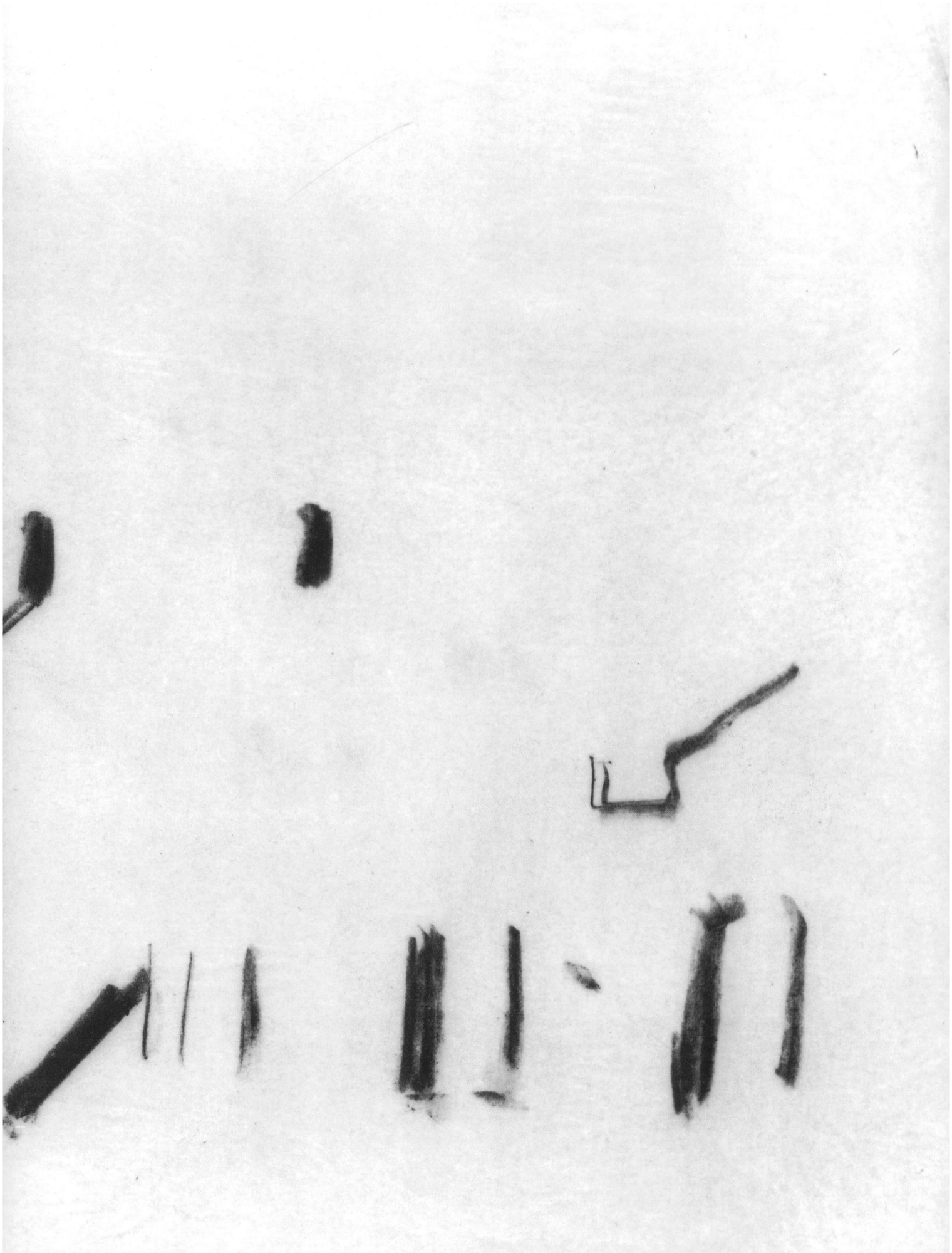
Next.

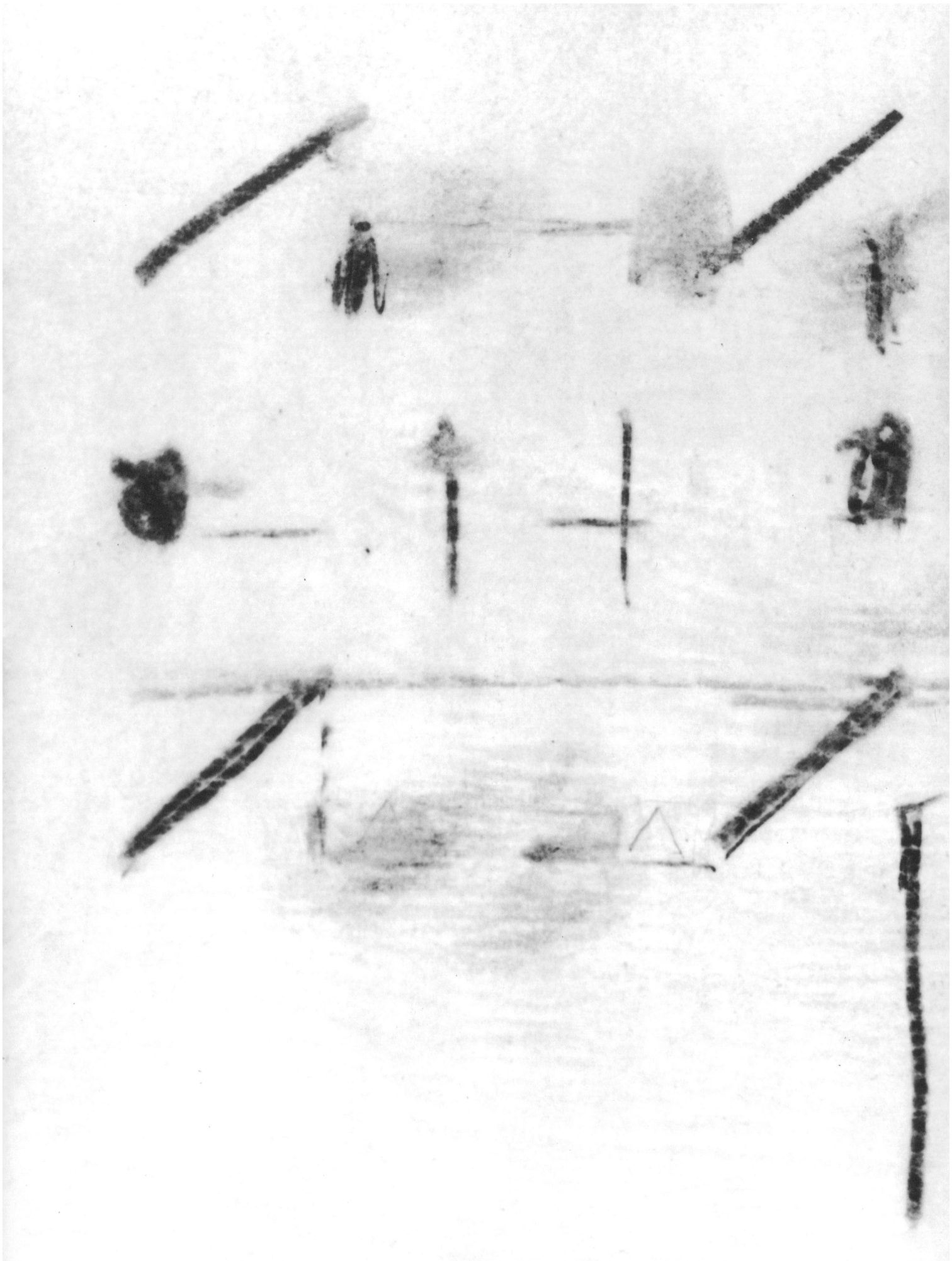
These are some others [pools], just running.

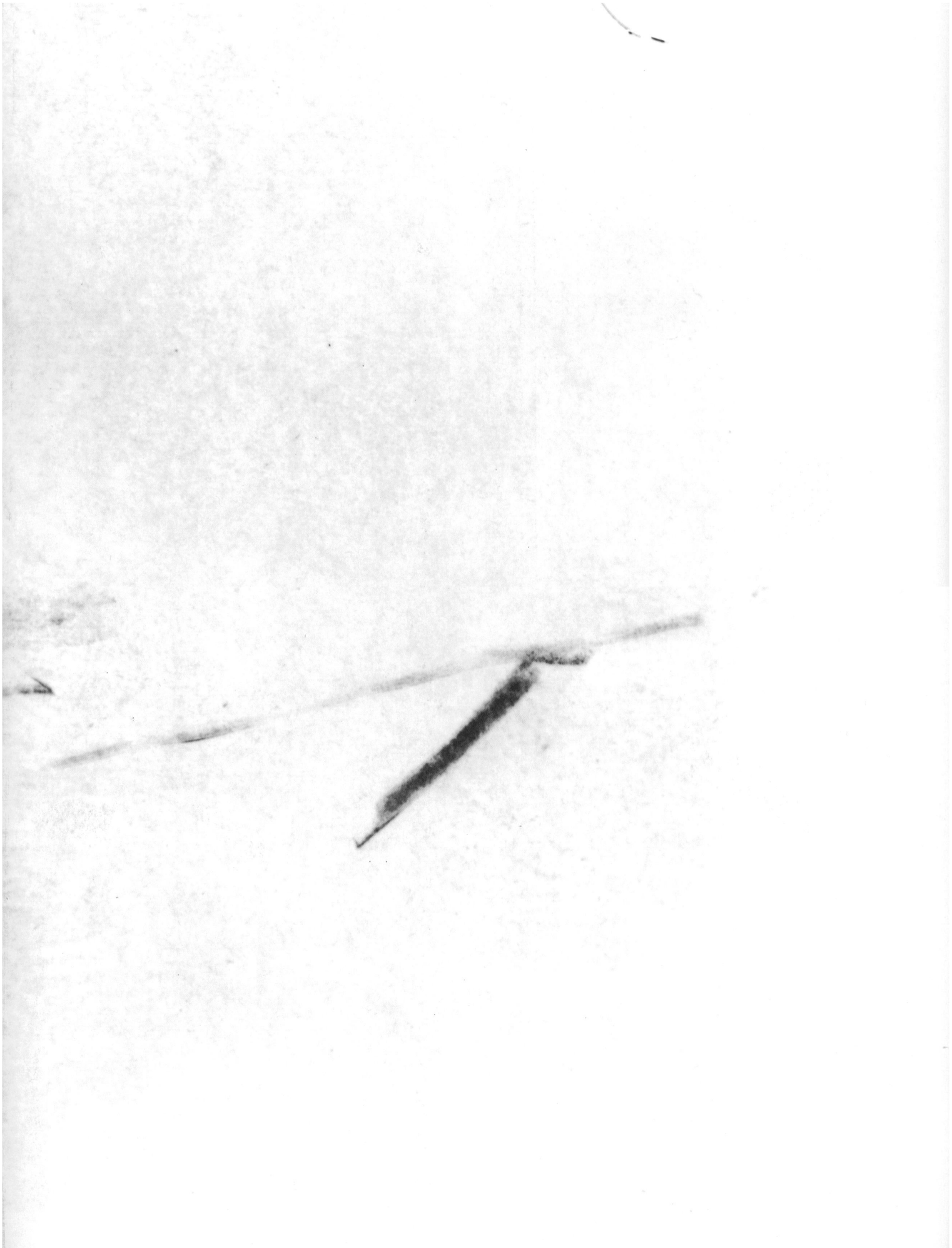
Next.

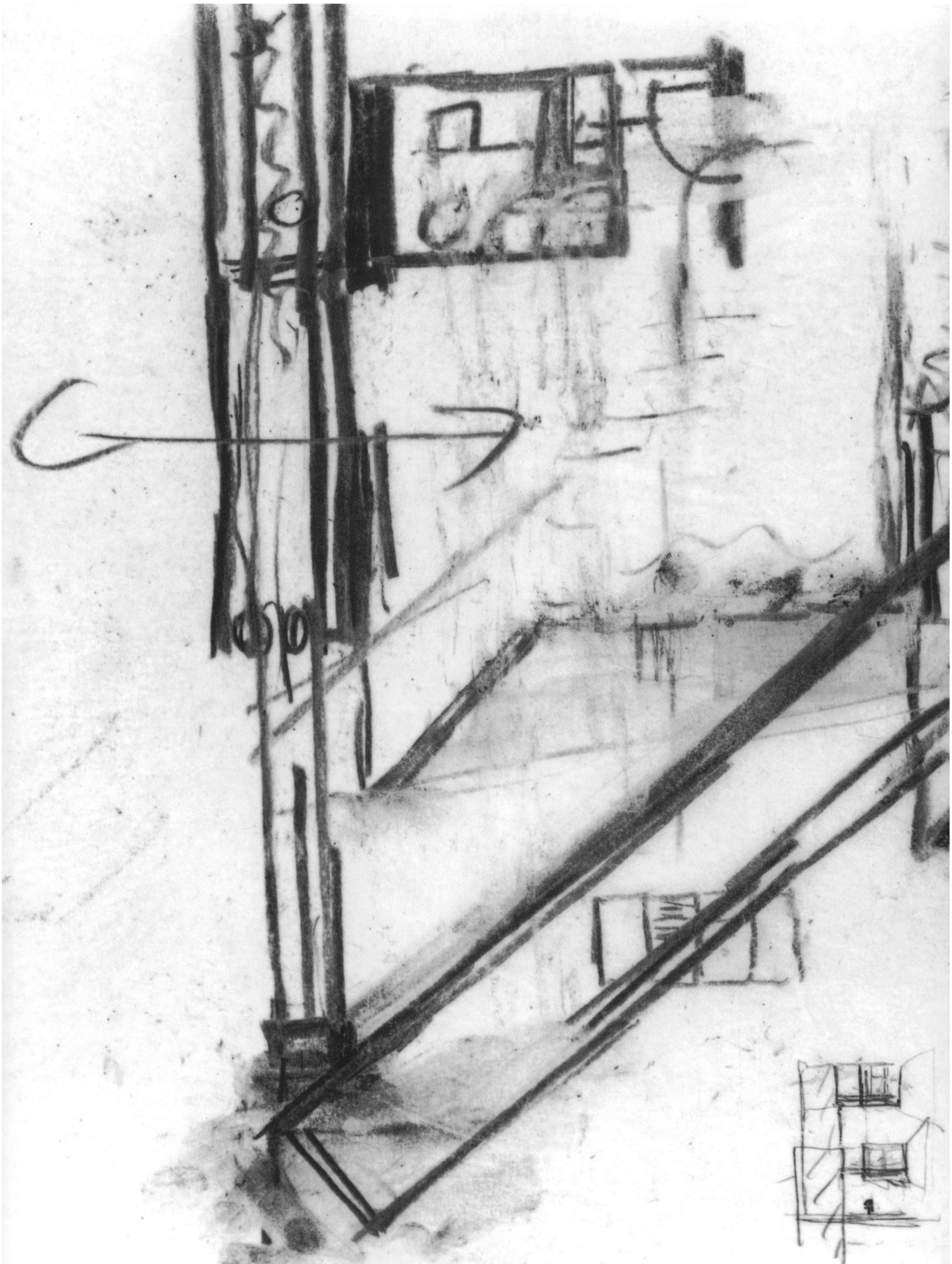
These are the porches, by the way, the intermediate porches. This is all poured-in-place concrete. There's no prefabrication; no precast work. The forms were all done by the architects, and they were very expensive, but they actually saved. I've gone up three hundred thousand dollars in concrete, in the end. They were done very well, and actually they worked very well. We had a very, very small amount of honeycombing – in fact, a negligible amount.

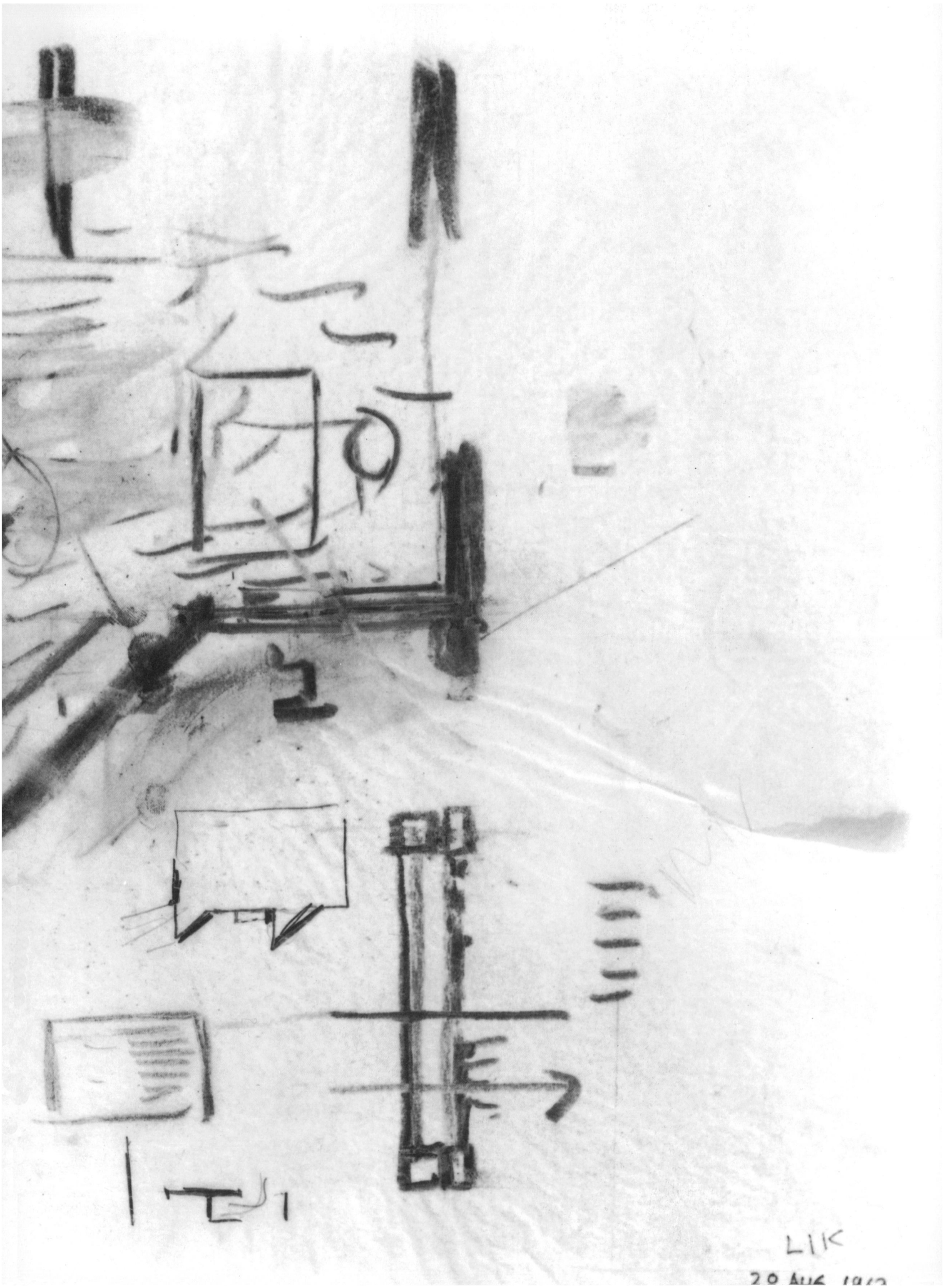


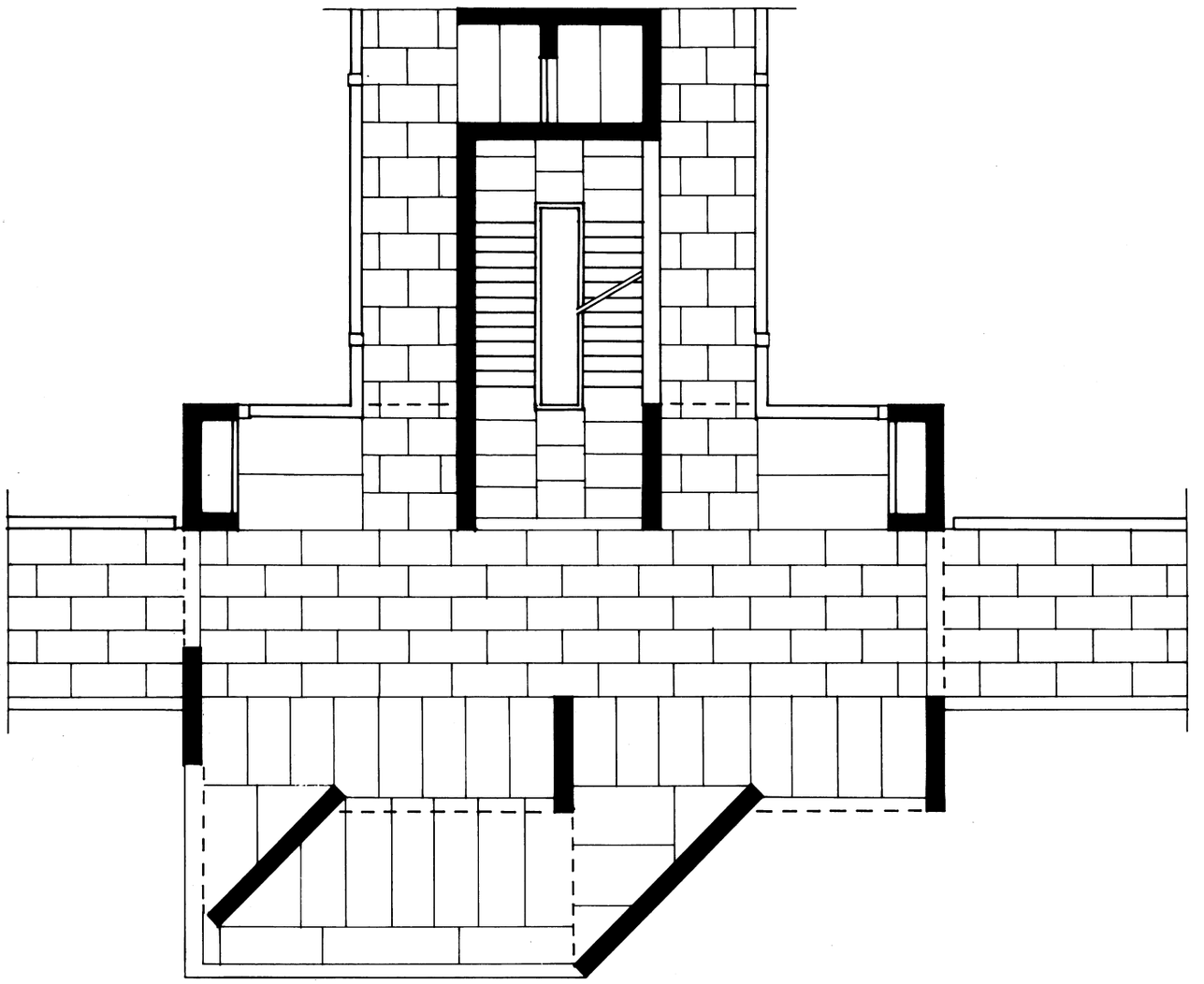












Preceding drawings by Louis I. Kahn in sequence:
Salk Institute for Biological Studies
La Jolla, California, 1959–65

12–13. Laboratories: Plan study. Various wall details
vine charcoal on tracing paper

14–15. Laboratories: Plan study
vine charcoal on tracing paper

16–17. Laboratories: Study. Window detail
20 August 1962
vine charcoal on tracing paper

Laboratories: Illustrative plan
ink on mylar

Next, please.

These are construction photographs, really, but I had them in the pile [of slides].

Next.

This is the same photograph you saw, but I thought it was rather a better photograph of the studies. You can use your imagination for the rest.

Next, please.

These are some of the details. Now these walls are made of plywood, twelve feet long and four feet wide; no [special] 'effects.' It was done with the idea, technologically capable, not recognizing from the start that concrete's no good, and that you do everything possible to make it look *not* like concrete. You know what I mean.

Audience member: What are the holes for?

The holes are there to hold the forms in position. You see, there are screw ties that go through the forms, which tighten them, and also space the forms so it's accurate, the wall is accurate, you see? And *that* appears, you see. And if you make it positive, and take care, they actually *are* very decorative. And then I covered them with lead, because there's some rust that can come out of it; I covered them all with lead. Lead and concrete work beautifully together.

Next, please.

These are some of the details, you see. The surfaces are very hard. Notice these little, little edges. That's where the boards came together. And the technique used there was to allow the concrete to bleed out slightly, 'cause you can't make a tight joint. If you try to make it tight, you'll have honeycombing there. But if you permit the joints to actually show, then the concrete is released, and it has a place to come out, and it fills it tightly, you see, and the only charm ...

[There is a short gap in tape resulting from reel transfer. The tape resumes with a discussion of the Salk 'meeting-house' complex in progress:]

... the buildings within buildings. There's actually an architecture to sun. This is what we call a 'sun architecture.' Inside is the building that you use, but outside is the building to the sun. And, because it has no roof, the light that pours on the interior of this construction, which, by the way, is made paper-thin, if you notice, it's made not to be, really, a supporting structure. And [in] the interior, then, as the next slide shows, you see, you feel no glare, although there is light there, because the walls, against the stark sky and the sea, will be modified by no contrast; an opening, you see, contrasted against the sun by the glare – that makes glare; this [interior] would *not* be in glare. And you could open all your windows, and look out, and you'd feel no glare. You'd feel as though you are outside, where you don't feel glare, either – very little.

Next, please.

So the meeting house I visualize as being a place where the windows would not show. They are simply openings in – this is a crude model, I mean, because you don't see the articulation of the making of it, which makes it very much better-looking.

Now here is a building – also a realization of an emerging kind of [unclear: practice?] or belief or institution; you see it there: [unclear word] Institute. Here the dormitories of this school of business management in India [are] grouped around the school. The school is this building up at the top, there, and these are the dormitories right next to it, and then a body of water separates that building from the other houses, and the houses are separate. This is near the University of Gujarat, and all the dormitories are little houses in themselves. There are no corridors in the dormitories. You go up the stairway, and there are some other utilities there – the bathrooms and so forth – and you enter a tea room from which you go to your house. That's how the plan works.

Next, please.

That's an abstraction of the school itself, showing the service room, and these are the dormitories, houses, the triangular building there. The corridors – well, I'll show you that later.

Next, please.

This is a more detailed plan of that.

Next, please.

These are early drawings I made of the dormitories as they approached the water. And I had some idea, you see, of having a highly *brise-soleil*-looking protection for the clubhouses, which are taking these two floors; the dormitories are above. But I was confused at that time between the *architectural* making of something and the device you use *to correct* something. A *brise-soleil*, for me, is *a correction*. Actually, *the porch* is the answer, because a porch has cool air in it, and a *brise-soleil* only translates the warm air into the building. So it was not a really, strongly functioning thing, *architecturally*, and therefore poor. And, you see, there it functions, but is architecturally poor. I mean, it functions – *apparently* functions – but it doesn't function.

Next, please.

Architecture is a kind of making of a validity, you know. It isn't an answer to something; it's a validity, like *we're* not the answers to anything, like a *mountain* is no answer to anything. It's a *validity* – it's *that* – *stronger* than the truth.

[Referring to slide:]

That's an early one, again [sketch], of the buildings that I saw they might be, you see. I think I was thinking a bit Indian, in this strange case, which is always a mistake, you know, because you just should think of its nature and it'll be Indian, all right, because you think of the architecture of light, and the architecture of water. I think to build an Indian town without the water towers being the most dominant buildings there, would be a great mistake. They should be the buildings you really see, because *that*, in India, is a tremendous sense of hope and validity. Not [unclear word] because you have the [unclear words] beginnings, which never brought it out. But that comes from the spirit, the understanding that this *is* a wonderful thing – man *feels* it, and that a man who knows how to *express* it – he becomes the leader of this expression. And then you see it, and you know what to do. *After* it's made you can put it in the machine, but only *after* you *make* it.

Next, please.

Now that [unclear words] with what we have done, because, after all, the money involved was also a question. And that fee's better. Oh, first of all because it's built. And so the next slides will show some of the beginnings of the building. All right.

Next, please.

And this is what it's looming up to be. You see, these are the houses, you see, after this, and these are the buildings rising. I like it the way it is; I hate to see it finished, don't you? I think it's much better this way.

Next, please.

This is rather – rather not the color, but I think the piling is what I showed before.

Next, please.

These openings, you see, are protections for the interior building which is inside, you see – the coolness of that, you see. The *brise-soleil* would be very bad, because it makes all kinds of design in your soup.

Next, please.

It shows here – those are temporary fixtures, by the way. I think they'll be there a long while, but I think [unclear words].

Next, please.

That's the photograph you saw in the magazine, but I think it's quite a good photograph. The next is the interior, the buttressing, you see, of the arches is apparent on the inside as well as out with it making this sort of flow, just the way ... matching the roof.

Next, please.

Now, here is the school, and that's rather an old edition (I was trying to find a new slide, but I couldn't find it). It has a completely different arrangement – much simpler than this – it's quite a complicated pile. But this is the library, and there [are] eating places in here. I made a little theater there, where you can draw a curtain. It needs to be buttressed, you see. That's why we have them. And then, on the residual spaces in the dining hall, coming in where you come in, it becomes a stage. And these are the administration buildings, up there, and over here, the classrooms. You reach the classrooms way around the corner, so you get the full protection from the sun falling on the porches.

Next, please.

This shows the section of that little theater. You see the buttressing of the arches, going this way.

Next, please.

This is a purely arched construction, and it's a straight brick work, but it is actually a composite order of brick and concrete. I can explain it to you in little places, more readily. This is your thrust, you see, that this arch would make, [and it] is restrained by a concrete member, across there. Even *these* also have concrete members. Now these little ones are there because you want [a] breeze in the balcony. You've gotta have a breeze below you, where your feet are, as well as above. Ventilation is absolutely essential. And that's what caused me to think of a composite order of concrete and brick, and I'll show you some other slides which bring that out.

Next, please.

There is an indication of the composite order. You see how these concrete members, here –

you see them, there, going across – they are concrete that restrains very low arches. I could never have made it ordinarily, if I didn't have concrete. So the entrance of concrete, with its power, and brick, with its nature, come together and form shapes which are *natural* to both the orders – a composite order. You see it, there. Even this shape – it also comes out of the concentrated load that comes at this point and must find its way; and this just fell in someplace; it has very little to carry – about there. So that is really an indented thing; a wall over a wall, you might say. This is really a column, but it's trying to be a wall.

Next, please.

I think this shows the concentrated load that the ceiling has, at those points, which must be brought down.

I'm very influenced by Choisy's drawings, because they are very economical and to the point. I wish you'd all learn to make them, [to draw] like them, to show the integrity of your work. Even a little portion, because if you think of a little portion you can also think of an element, an element which, when repeated (like in music) – when repeated, you see – it becomes something which almost composes itself, in a way: The 'Order of Realization.' Not the freewheeling, all-over-the-place, you see, and if you ever had to make a drawing of it, you'd have to be on the job – sleep there, eat there, everything else.

Let me explain, because architecture is not that kind of thing. A sculptor's work is that kind of thing. Every imprint of the thumb, you see, must be there. I don't believe in assembled junk piles, glued together. I believe that everything should have the imprint of the artist, in the structure. In architecture, it must be the instruction. It must be the instruction because it's beyond his [the architect's] ability; he doesn't handle a brick. See, 'in the instruction' means it's a tremendous 'order-sentencing' – not just a thing, really, as though you were doing some piece of sculpture with your thumb, or something.

Next, please. – I'm *mad*, don't you see!

So, now, I'll just show you other aspects of this model of the school. It's a wooden model, but very nice-looking, anyway.

Next, please.

Now this is the old plan of Dacca, and, again, the sense of 'institution' there. Good, the whole plan reveals itself to *me* just the way it is, there. Actually it's the graphic presentation of the first thought that this was a citadel of the Assembly; this was a citadel of the Institutions. Because the Assembly was a maker of the institutions – the *establishment* of them – and these institutions which are basic ones of science and art and just 'well-being': a place of well-being which is – gravitates around – a stadium that has many rooms and gardens in it, to just respect the body itself: an institution which [as] yet has not been created anywhere in the world. (And the village [is] behind.)

The next slide indicates a progression of this. I turned the thing around, by the way, and I made the hostels and the assembly room in a lake. It's necessary to make lakes in Dacca because the land is so flat and the floods are high. One must have a raised area, so these all are raised buildings, and the way to make ground for, even for grading, is to make lakes there. Everybody does it, so I did it, too. But at first I saw the Assembly as a transcendent place. It don't [sic] matter what kind of a rogue you are: In the Assembly you are still – when you're having an assembly, your vote is a considered one. And I thought, also, that the mosque was an important aspect of 'assembly,' being a transcendent place. And also because they are very loyal to the tenets of their religion.

And: In the program was a space, three thousand square feet, with a closet for rugs. I translated that into a mosque which is thirty thousand square feet, and nobody cried. It's because you were discovering

the 'ingredients' that are good for *this* place. That's what that is; it's little, down before. In the other one, you see, you notice – but it was as big as Hagia Sophia, and that was a little bit too much, I think. So we brought it down to something more reasonable.

But, you know, a funny story about this thing: When I took the plans to the Chief Justice, he didn't want to be anywhere near the walls of the Assembly, as he put it, you see. He didn't want to be near this place. And, obviously, part of my duty was to build the Assembly building – project the building. And so, before I [had] made any sketches (I made the first sketches in front of him, because it was the first time I came here), I showed him this concept I had of a mosque. And he put the Supreme Court where I would have put it, you see. He said the mosque was sufficient insulation for him. (*Precisely.*)

Next, please.

Here is the way it's shaping up – always worse than your first sketch, I think. But, however, these took care of many, many problems that I had which I completely couldn't have taken in, in the first sketches which I showed. But these are some – these things have changed. But, you see, the *essential* thing is quite the same.

Next.

This is an old drawing – no, old model – which showed the Assembly in this shape. I rather still like it better than the one I have now, but the problems I have in the Assembly could not take this. It just had to grow bigger. And this is water, these are some avenues going across, these are the hostels. I changed [the program]: In the program there's a *hotel* for the visiting members of the Assembly, the judges, the ministers, the secretaries. I changed this to '*studies in their own gardens*,' on the lake, and that was accepted. Transformation, completely – the *program* asked for a hotel.

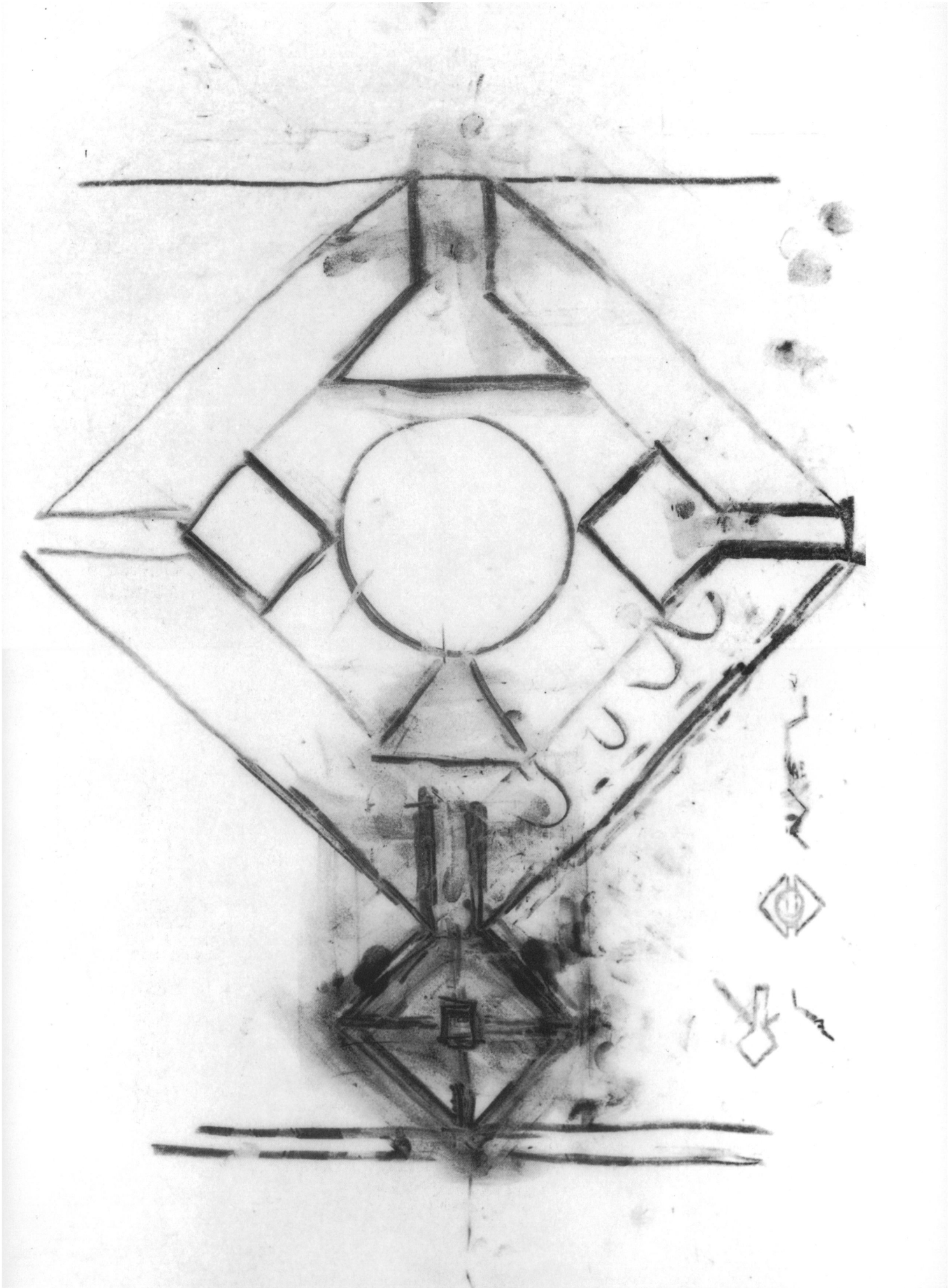
Next, please.

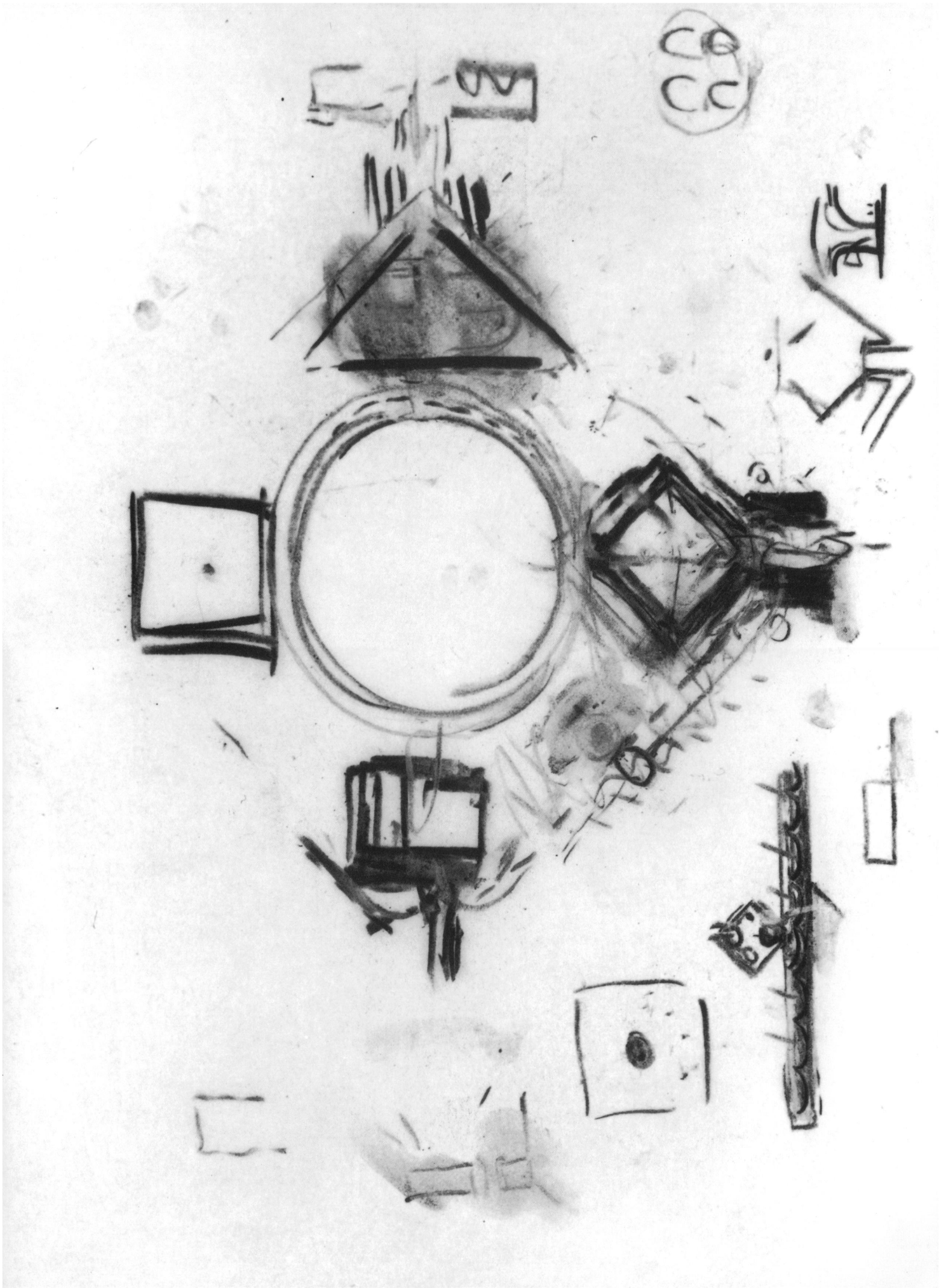
This is the way it's beginning to look now. This is the waterway that you see, the gardens beyond, the Presidential Square here, more water, and this leads to the Assembly – to the institutions back there. These are the hostels, now, as they're shaping up.

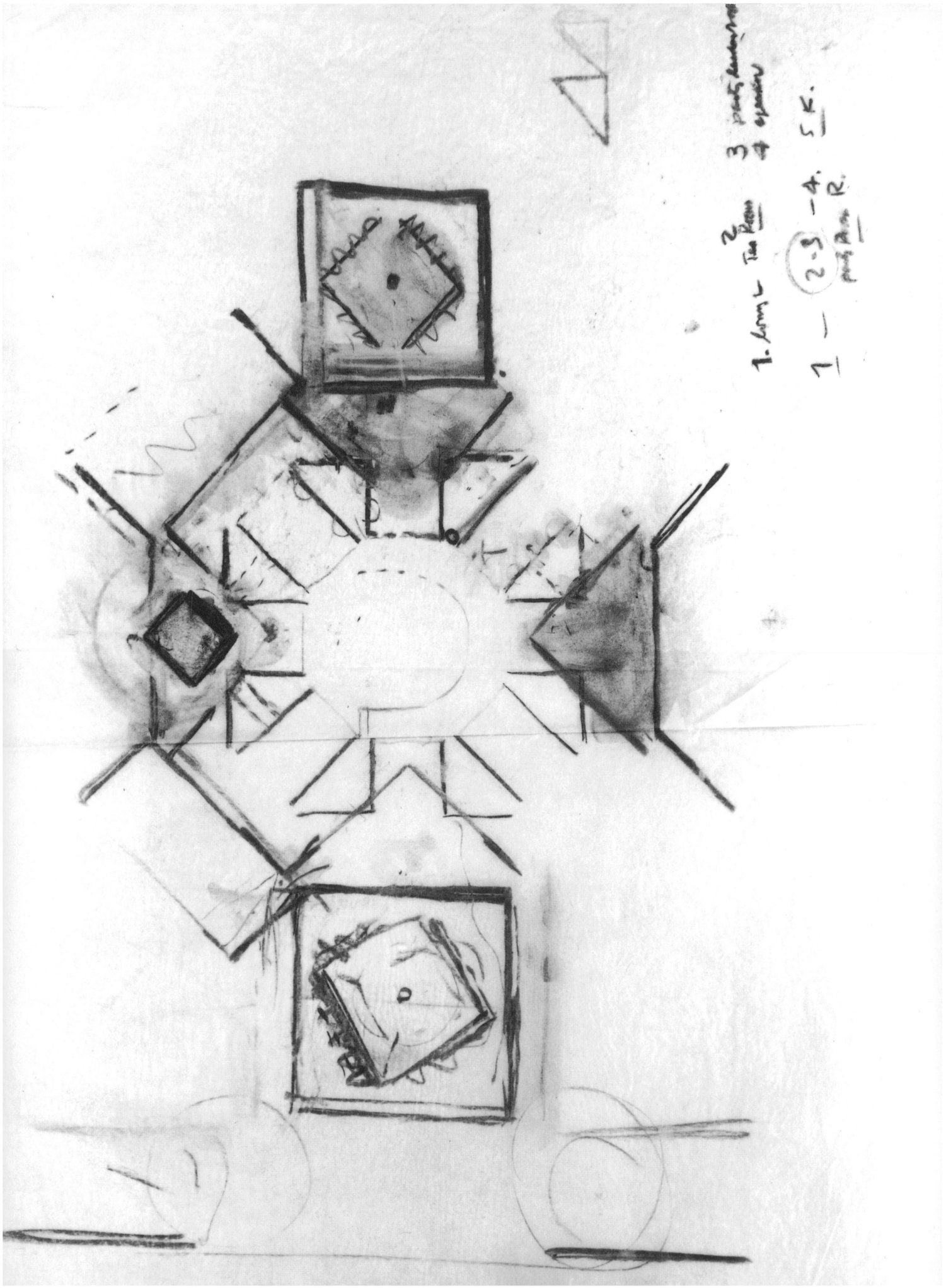
Next, please.

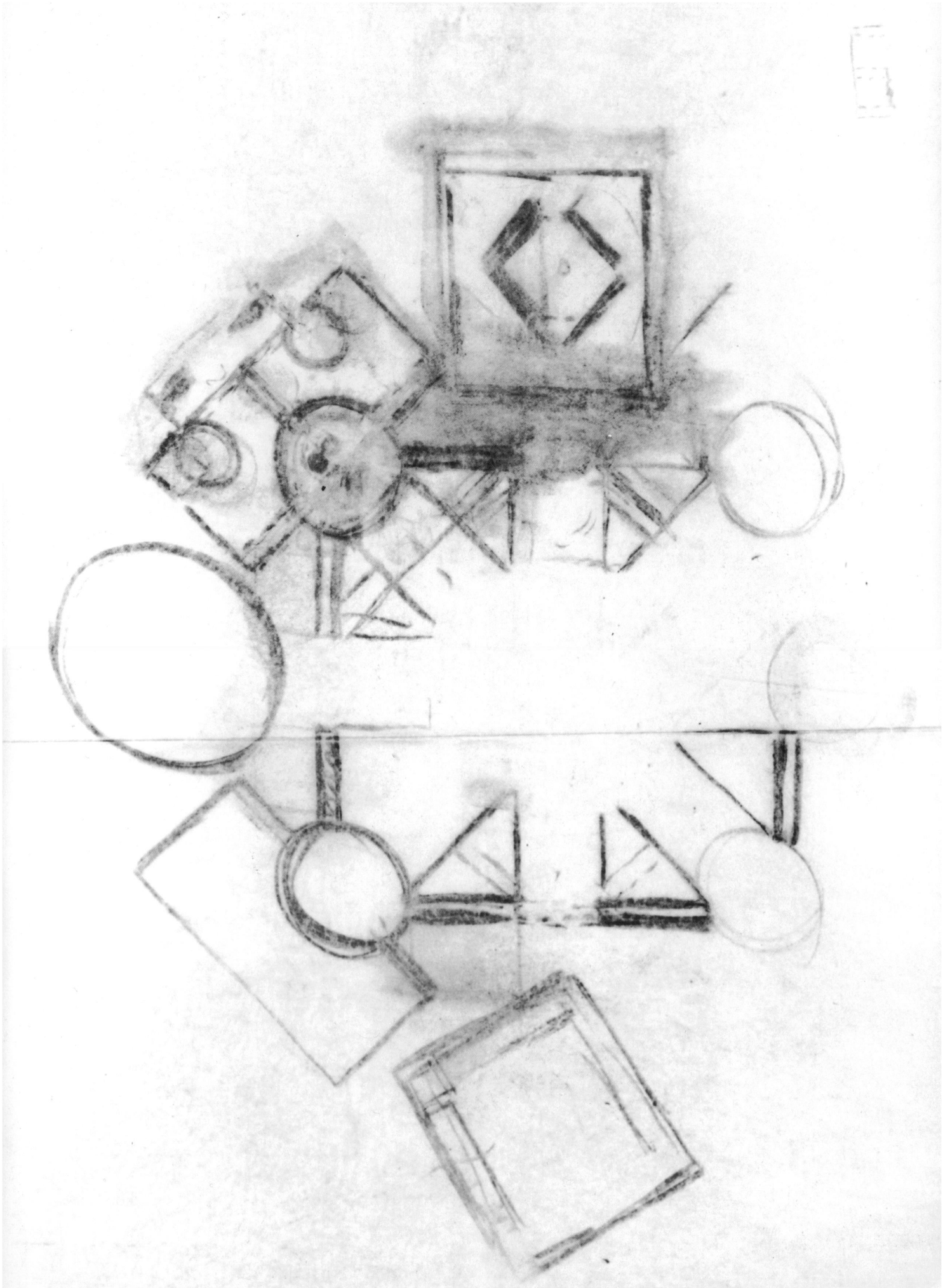
That's a very old one, too. I bring you this because, again, what I told you about, and it is an elemental realization, which, when once in your mind, you never want to 'think' but repeating it, because in its repetition lies its beauty. Not [unclear:forced?] circumstances – you don't know what they are. You get something which doesn't have so circumstantial a consideration. You don't know what the circumstances are. In fact, circumstance, you might say, is continuous and unpredictable. So, what do you know about it? What do you know about, say, the next moment? You can't. You can't anticipate circumstance. That's the success of Cartier-Bresson's photography. He says he looks for the crucial moment. That means he selects, out of a continuum of circumstance, *one* particular thing which, at that moment, only the camera can take. No other artist has this instrument, you see, of expression. Now, at that moment [when] I realized that, then "Whistler's Mother," and photography, and Japanese effects, meant absolutely nothing. But previously it did. I realized, you see, they were only just little – they were just 'surface.' They were, rather, *fringe* things, you see; things also you can do, but in nature, photography – No.

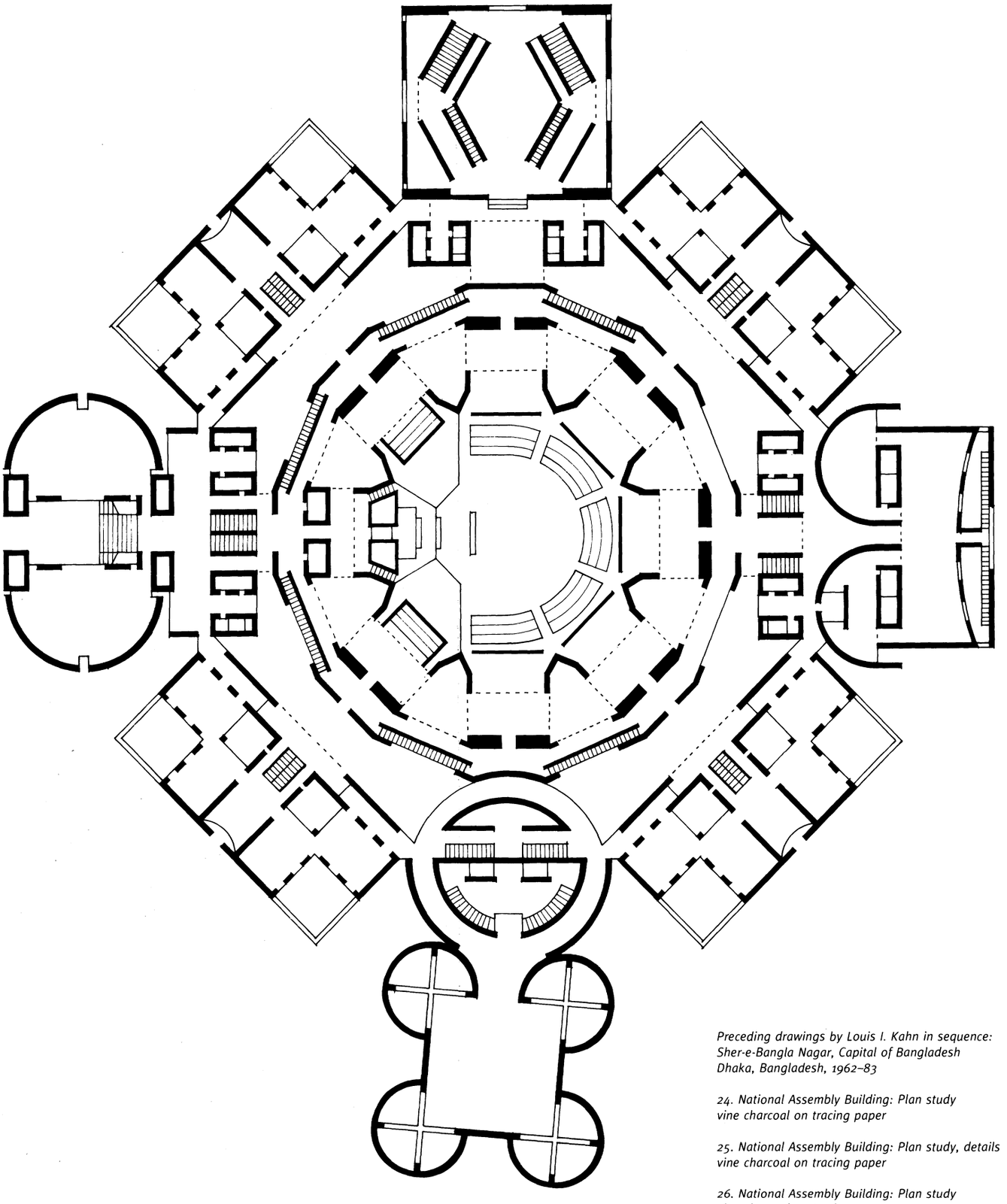
I bring this out because, in the next slide shows [sic] the construction, the light construction of the Assembly, where the finding, you see, of these courts, and for light, were equally elemental. These courts were elemental. And the white areas, you see, were light-giving areas. It's rather a move away, far, from what you may call a column. But in a way it is not. When you think of a column, you think of a construction that wants, really, to break out of the seams. It feels its strength only around the periphery. Only











Preceding drawings by Louis I. Kahn in sequence:
Sher-e-Bangla Nagar, Capital of Bangladesh
Dhaka, Bangladesh, 1962–83

24. National Assembly Building: Plan study
vine charcoal on tracing paper

25. National Assembly Building: Plan study, details
vine charcoal on tracing paper

26. National Assembly Building: Plan study
vine charcoal on tracing paper

27. National Assembly Building: Partial plan study
vine charcoal on tracing paper

National Assembly Building: Illustrative plan
ink on mylar

inside it wants to be hollow, because its strength really rides inside. It wants to put something inside, and yet you think of it growing bigger and bigger and bigger and bigger. You see, you think of the interior having a kind of *hope* about it, or *anticipation* about it. And the word 'hope-anticipation' you can really put as a meaning of the inside of a column – all its strength is outside. And I thought of it, really, that way. This was really a column, you see, which became a court. And I can explain this some other time when I come to visit and come into, maybe, actually go with you on a column-court, maybe a week's time, which I'd love to do (when I find the time), see, to explain this to you, because it's very exciting to discover these so-called 'all-out' ideas, you see. I mean 'way out' – you call them 'way out.' Okay. You see, these are the offices – here – and then the special rooms are placed. Essentially it's a square, with just this little bit `[unclear: aggravated piece ?]`.

Next, please.

See, the mosque turns slightly towards true West. There; it's West – the building. I purposely did that. I *purposely* made that building sit there like that so I could turn the mosque the other way. In other words, how would you know that it's *particular*?

Next, please.

Incidentally, these circular openings are for light and for ventilation. It's essentially light, for the light, you see, which is actually a silver light that you get inside. You get no actual edges of the shape or anything. This is the mosque.

Next, please.

This is construction of the mosque, and it's made of, actually, light-giving elements, you see, through here, which have openings in them. But they're all so made [so] that you need no windows on the inside. It can pour – and it does pour – in Dacca, 'cause they have three hundred inches of rain a year. But it can pour, and you can see sheets of water through here, but you get no water inside. And that'd be the environment of the mosque.

Now these stripes that you see there are the way I made the construction. I poured every five feet, and rested, so that all the screw ties I talked to you about just a little while ago – these little holes – would all be in this little area where I placed marble. So, you would have marble inserts every five feet, and that's how it's made. Because they technically are unable to make it – the concrete – as 'Salk concrete,' you see, so I made the 'trauma' part – the part that always is bad, when you start another pour – be a, well, be a sort of cruddy event, you see. But the bar that was in there, to supplant, you see – it's like thickening – it actually becomes a wash, maybe. Because it rains so much: so the wall is not made so damp coming down. If you had the wall, with the rain coming from the top down to the bottom, it would be soaked, you see. This way, every five feet it's drained. It's a combination. It's an 'Order'; a realization of concrete, of construction, and [of] need.

Next.

Now this – it's the Presidential Square view, where I showed you near the garden. And it's taking away the wall of this to see the stairways and the construction of the stairways and then to the higher part that is the gardens above.

Next picture.

Again, I try to show you the construction, you see, of this particular entrance. It happens to be that *this is* the base. But what's the difference? You know? This is the base, here; it should be around like that, you see. Well, I think it looks better this way.

Next slide, please.

Now this is the construction of the Presidential Square, which is entirely in brick: brick is their material – concrete is not. I used as much brick as I could. And these are all arched constructions below the Presidential Square, and the next slide shows you some of them; there they are. These are thirty-foot arches, in brick. Brick is very cheap – these are not expensive constructions. Here it would be fabulously expensive. Now, I have made the lower part of this, which are the catacombs of the, you might say, the Presidential Square – a mosque. It turns in the right direction, anyway.

Next, please. (I changed it somewhat, too.)

You see how it goes on, this construction? These are the lower arches, and they're very large, high arches. And then, you see, because the Square itself has a place where you sit, you see, and so these arches are receding, actually, in size: big ones, and the smaller ones, and finally very small ones. (Well, not very small – the small ones are ten feet, and these large ones are about thirty.)

Next, please.

This will all be paved. It is now temporarily paved with brick. It means nothing to temporarily pave something – take it off and put it on again. Labor is zero, as far as cost is concerned. This is *different*, too.

Next, please.

This general aspect of Dacca: [is] 'protected walls.' Inside, `[unclear words]` of light. In fact, light is really unwanted. But it's not so much light, as it is sun that's unwanted. You feel most comfortable when you're in a room which is flanked by other rooms which get the light.

Next, please.

Now I show you this as one of the buildings. You know – the hostels – have central buildings, and they are dining rooms and so forth. I show you this because some of the arch work I will show you now will indicate – well, one of these will show what I mean about the openings, these round openings.

Next, please.

That, you see, for instance, *these* arches, naturally, will be built with the brick all the way through (you see, they're actually brick all the way through), but these are openings in round openings, and they use the stairway coming up from one level to another as a brace for these openings. That is on the water.

Next, please.

Now these openings show you how the composite order works. There is an opening, here. You see this arch? – this low one? That would really break through here, but it's restrained by this concrete member, across there. Here's a floor, you see, and that supports that floor – that's what it's there for – but it involves also an opening, there. And these round constructions which I have here (not so well completed) – but they were meant to counteract a force upwards because it's earthquake country. So that round shape, well, I got so fascinated with that round shape that I could use it anywhere. Because I find them – they're a very satisfying way of making an opening in a wall. It's continuous. I find that it's *satisfying*, somehow, and, well, it's *easy*, too.

Next, please.

These are all just 'mad,' you know, kinds of things to make. These composite orders going this way, you see, these great sweeps you can make because there is no reason why you can't. Now, these restraints, you see, going through there, it's making one instead of two, you see. And this could not be done in any other architecture but today, because the concrete, you see, is helping this possibility.

Next, please.

Here's where the idea really began. Because there, you see, in the porch of the houses, I needed to have ventilation at the peak. You see there? Low, otherwise this would not function. And that's what made this thing actually exist. So, you get very good ventilation there – it works beautifully.

Next, please.

Now, I thought it was an original idea, of course, until I read pages of Leonardo, where he writes: "On the remedy for earthquakes," and [in Leonardo] *there* is that reverse arch. You see it there? So, you can't win; you can't win!

Next, please.

Now, this is the synagogue building where I saw a game of light. And these are 'chambers' of light: they are twenty-foot chambers, where the windows outside are glazed, and, inside, the openings lead into the chamber itself. Now, these are useful areas because, in the High Holidays of the Hebrew religion, the women are always upstairs, you see, and they look down on what's happening, and that affords a place for them, you see, to be. There's also a place for them in the actual sanctuary itself. That's part of the ritual that you see, there. And this is a chapel built the same way. And, also, the community building has a court, made the same way. And that column I spoke to you about – that column, which has windows in it and now becomes a court – is shown, here, see. It's really a *way of thinking*. It has nothing to do with what – it's a familiar thing, but a *different way of thinking*.

Next, please.

There are the doors to enter the community building, here. And there's a *sukkah*, which is a place during the festival days – the harvest, I mean to say. And here is the chapel; here is the synagogue.

Next, please.

This shows you some photographs of a model we made. It shows the interior openings, you see. And the exterior openings you see there – they're the glazed ones. This is the building, with very little glass.

Next, please.

This is an early drawing I made, and, here, you see, I tried (I didn't have much thought, here), and I tried to imitate what I did here, until I realized that the interior light, there, is a *different* one. And that's how I got to the window, which is *much* more in keeping with the window across the way.

Next, please.

That shows some cross influences, where in the work I was doing in India I realized that

some of the ways in which I tried to express these openings was not as good as to have these arches, you see, just *brace* the building as it turns around, where the glass is set into them. And that's what *this* – even *that*, you see, is really a pivoted door – triangular door – which opens in this direction, so you can walk in freely, and, when it's closed entirely in this direction, it has a door *in it*, through which you can go to get to the actual main chamber. It's sort of a 'door'; and it calls for another door, you see. Because the *spirit* says there must be another door – not any book, not any document, not any machine, not the professor. You see, it's just *you* have this '*architectural feeling*' – at least I thought I did – and, yes, this door was worth the trouble.

Next, please.

There, again, light, light, light; that's the Unitarian Church, Rochester. All these undulations are, in a way, to modify light, and to get niches for sitting, and everything that changes your feeling when you enter, and that changes your feeling when you come back to where you were. *Loyalty* to what you see – with the environment.

Next, please.

That's the light that's gotten through these four walls. It's very wonderful. It's all just block construction, but these blocks are made eight by eight – they're not made long. If cut, it causes a blotching of one block to the other to – not to appear. It homogenizes much better. In the Yale Art Gallery I also used block. I made it five by five, and they have a tendency to make a wall look even more detached rather than make it look structural or something. But I'm not sure you can call cinder block a terribly worthy material, as a *structural* material. But as a making of a wall which is not structural – this is *not*, you see – it is a very strange specimen.

Next.

Here are the Bryn Mawr dormitories, which I have no good slides of, but the same clerestory light comes through these places. And this is where we have, you see, this miserable furniture you see back there. And the dining hall and the entry hall is made this way. It's nice – a very poor photograph. The only thing I discovered in making these things: that there's only one source of – there are very few outlets in this building, and there's plenty of light. You groove the outlets – you don't mix so many in concrete. The concrete is a treacherous material to deal with if you have too many intrusions in it. You must divorce it of all extraneous needs; it must just be itself. So making one or two holes in the building – coming through it – are [sic] better than making many, like for outlets and all kinds of attachments. Because you can't control it, technologically, when you're pouring concrete. There's too much concern about *pouring* it, you see, and, and that's one of the faults with it.

Next, please.

Now I show you some sketches I made in Europe as an '*envoi*,' you see – just to show you I can draw. These were made in Greece, and Rome, and in Italy, and in Egypt. I'll just go through them. You just go one after the other, just as *you* want to see them, and I'll just tell you where they are.

[Professor Kahn speaking to the projectionist:]

Please, just go through them. I did that before breakfast. I mean, you think I had breakfast? I did.

[The slides continue.]

You think that's what it looks like? No. No, you just drew what you wanted to see. Oop, you've got to *watch* those things – they're terrible. This final service has started; it isn't in the picture. I gotta clean up before I show 'em tonight.

Now, I show you two other slides, just to remind you of something.

The next.

This is a picture of a Cruikshank drawing. And the religion there is the same as the religion in architecture. You see, in this drawing, the *fire* is the *light*, and the *paper* is the *light*, and where the light is *not* is the *stroke*. And like consciousness all over, because you see the direction of light?, the direction of stroke? – relentlessly, relentlessly, same way. Even those stones are made, you see, and cloaks are made, and modified slightly; they're the movement, but, in general, it's so controlled. And where light is struggling to exist, there's all kinds of privileges you have, you see, with your stroke. But at this point, no. That's how *'religiously'* it's made; how 'Order' enters a drawing like this, as well, as in the light. And if you think he didn't have fun doing it that way, look at the *drawing*!

The next slide shows the same kind of discipline. This is a Flaxman drawing. And here: there is the wind, you see, which is all indicated the same way. See? Right on through. And what the wind can't touch – like the stone – it is *not* done. And the fire does have no detail, except that it is outlined as a temporary kind of shape. It really doesn't look static-y; it looks as though it just loomed up like that, and he gave it position, you see, and constantly changed. It's a beautiful drawing!

And I think that's the end of my slides, and I thank you very much.

[A lengthy round of applause from the audience.]