

THE AGA KHAN AWARD FOR ARCHITECTURE

1983 ARCHITECTS' RECORD

CONFIDENTIAL

I. IDENTIFICATION

A. Project Title

The Building Program for the Selseleh Integrated Development

Project (SIDP) Selected Building Projects: Community Bath (hamaams) Niazabad, Serab Said Ali, Schools - Aleshtar Kindergarten, Kaka Reza Primary (hamaams), Schools and Housing (see Report for detailed descriptions of the program and the projects).
Housing; Aleshtar low-cost Prototype, Serab Amir Guest-Meeting House
see "Report" for detail description of Program & Projects¹.

B. Postal Address

Aleshtar, Selseleh, Lorestan, IRAN.

II. PERSONS RESPONSIBLE (Also see Annex 1 & 3 of Report)

A. Client/Owner

The Selseleh-Integrated Development Project in Aleshtar, Lorestan, IRAN as:

(1) the sole client for buildings exclusively used by SIDP (e.g. Serab-e-Amir Guest/Meeting House);

(2) the primary client in joint projects built in partnership with:

(a) the villages in which the projects were constructed (e.g. ^{Niazabad} hamaams)

(b) the Government of Iran for the government funded projects (e.g., Aleshtar Kindergarten, Kaka-Reza Primary School).

B. Architect/Planner

The DEVELOPMENT WORKSHOP (DW) with postal address at: Box 133, Davenport Road, Toronto, Ontario M5R1J6 CANADA. The DW members are: Farokh Afshar (currently at 30 Main Gulberg, Lahore PAKISTAN); Allan Cain, Mohammad Reza Darai, and John Norton (all currently at CP 3360, Luanda ANGOLA). The DW was collectively responsible for the Building Section of the SIDP and for designing and implementing

¹Development Workshop, "Report on the Building Program for the Selseleh Integrated Development Project," July 1982. A copy is attached. The Report of this record is based on personal notes & recollections since Project documents & records are not available.

the Building Program. One representative of DW sat on the central committee of SIDP which decides on overall policy planning and implementation of the Project.

C. Consultants

None.

D. Contractor

Most projects were implemented by the Building Section. The Kaka-Reza School and some infrastructure of Aleshtar Town Plan was contracted to Ustad Ali, mason and contractor of Aleshtar, Lorestan, IRAN.

E. Master Craftsman

Ustad Mashallah and Ustad Husain of Yazd, Khiyaban Saied Golsorokh, Kucheh Fasn (?) #10, IRAN. Tel.# 24734. Both were main masons for several buildings (e.g., Niazabad hamaam & Aleshtar Kindergarten) and supervised construction and builder training in all projects. The main masons working under their supervision in other projects were:

- [check address →]
- (1) ^{so}Dost Ali and Sheerwand for the Hamaam in Serab Saied Ali;
 - (2) Ustad Ali for the Kaka-Reza Elementary School;
 - (3) ? for the Caretaker's House;
 - (4) Ustad Husain, Mashalla, Kapkali, ^{so}Dust Ali, Sheerawand, ? , ?
? for the Guest/Meeting House in Serab-e-Amir.

III. USE

A. Type(s) of Use

Community baths, schools, community and health centers, and housing.

B. User/Occupant

The village and Aleshtar community except for the following projects: caretaker's house (individual household); teachers' housing (govern-

ment teachers) and Serab-e-Amir Guest/meeting house SIDP Staff and visitors).

(1) Occupation

Farmers, artisans, small shop owners and civil servants.

(2) Income Level

Low-income and low-middle income except for the Serab-e-Amir Guest House.

IV. PROJECT HISTORY

The stages varied with each particular project. Where prototype designs were used (e.g., Hamaama, Centres for Collective Promotion), the design stage was the same period for a number of projects constructed at different times. Detailed records are not available outside Iran to give precise dates for the stages of each project.

See "Report", Annex 2 for the year of design and construction for each project.

V. PROJECT ECONOMICS

The buildings attempted to achieve a particular per square meter cost which was a better indicator of cost-effectiveness than meeting a prescribed budget. Where a budget was stipulated (e.g., government funded buildings), the entire budget was used, resulting in a larger facility than the standard government design. The per m² costs achieved by SIDP were lower than those achieved by the government.

A. Total Initial Budget

Not available.

B. Total Actual Costs

A breakdown of the approximate construction costs (in 1975 to 1977 prices) is as follows (see also "Report", Annex 2):

(1) Low-cost buildings (e.g., hamaams, elementary schools, health and promotion centres, petrol station, prototype house): 16 units x [?] m² (average) x Rials 5000/m² =

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(2) Medium-cost buildings (e.g., Niazabad hamaam, Technical School, Kindergarten, Teachers' Housing and Guest House):

7 units x m² (average) x Rials 10000/m² =

(3) Estimated Total Construction Costs = Rials

C. Analysis of Costs

(1) Land Donated free

(2) Materials ⁶⁵ 60% of total costs = Rials

(3) Labour ³⁵ 30% of total cost = Rials

(4) ^{Professional Fees} Staff Salaries ^{All} 10% of total cost = Rials

D. Source(s) of Funds

(1) Private (village community) 30% of total funds

(2) Public (SIDP & gov't.) 70% of total funds

(a) Local (provincial gov't.) 20% of public funds

(b) National (SIDP budget) 80% of public funds

(c) International nil

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VI. CONSTRUCTION DETAILS

Construction details varied with each project. The general conditions are described below (see project descriptions in "Report" for details):

A. Site Area and Characteristics

Usually within a plains village, i.e., flat land (e.g., Niazabad, Aleshtar) or a hill village, along rolling slope (e.g., Serab Said Ali, Kaka-Reza, Serab-e-Amir). See Annex 2 of report for related project names.

* Rials 75 = US \$ 10 (1976)

1. 1. 10/11/76 (1976)

B. Total Floor Area of Individual Buildings

Ranged from ? in Serab-e-Amir to ? Serab-e-A

C. Structural System

(1) Walls: bitumin stabilised mud-brick, stone or fired brick.
with mortar of mud or lime sand (1:3) sometimes, cement-
lime-sand (1:3:9).

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(2) Roof:

(a) timber beams and planks with bituminised hessian
between mud layers

(b) fired or mud-brick vault and dome.

D. Materials

No materials used were imported (from outside the country). Those purchased from outside the Lorestan region are indicated.

(1) Infill

(2) Rendering of Facades: bituminised mud plaster or exposed stone or brick (some brick and bitumin from neighboring region).

(3) Floors: Cement screed or tiles on packed earth and aggregate (cement and tiles from neighboring region).

(4) Ceilings: timber beams and planks or brick vaults and domes (some bricks from neighboring regions).

(5) Others:

E. Site Utilities and Building Services

Conventional water supply, drainage and electricity. Experimental solar water heating used in Serab-e-Amir project and designed for in Hamaam projects.

F. Construction Technology

- (1) See item C above.
- (2) All on site fabrication

G. Type of Labour Force

- (1) Skilled 20%
- (2) Unskilled *0%

H. Origin of Labour Force

No labour was imported from outside the country. Out of a total building labour force of approximately 30, only 2 masons came from outside the region (Yazd).

- (1) Domestic 100%
- (2) Imported ---

VII. EVOLUTION OF DESIGN CONCEPTS

A detailed description of the typical project cycle followed in the Building Program and individual project cycles for selected building projects are described in Sections 3 and 3.1 to 3.3.2 respectively, of the "Report". What follows is a summary.

From 1975 to 1977, DW designed and constructed 3 hamaams, 9 schools and health centers, 5 Centers for Collective Promotion, 5 housing projects and a petrol station. A typical project cycle - initiation, design, implementation, operation and maintenance - is described below, followed by case-specific examples.

Projects jointly funded by SIDP and the user community (the village) were initiated by one or the other. Usually a first of its kind project (e.g., the Niazabad hamaam) would be suggested by SIDP to a village, other villages would subsequently request similar facilities (e.g. Serab Said Ali Hamaam).

The value and feasibility of the project would be discussed by SIDP's central committee followed by meetings between the host village, the village development cadre and SIDP representatives, including a DW member. The latter meetings would establish the respective responsibilities of SIDP and the village as well as the siting, design and implementation arrangements. The village had to contribute at least land and unskilled labour. The village builder(s), if any, would be recruited and trained to work in the project.

DW developed the detailed design through such discussions with the villagers, the builders and a study of similar existing buildings in the area. On completion, the buildings were to become the responsibility of the village which, in practice, often meant the resident cadre.

A number of buildings were annually selected and funded by the provincial government and given to SIDP to execute. The settlement location and standard government drawings were provided. Except for types, sizes and number of rooms and the standard of utilities shown in the official design, the detailed design could be decided by SIDP. The operational aspects, siting and design of such projects were also developed in discussion with the SIDP central committee, members of the host settlement and the builders. Since the projects were fully budgeted, no voluntary labor was required. The projects were turned over to the relevant government department for operation and maintenance.

In addition to conventional criteria all buildings were designed to:
(1) demonstrate the use of indigenous designs and technologies,

(2) train local builders, (3) generate maximum local incomes and employment, and (4) cost less per m² than the equivalent standard government constructed buildings.

The following are summaries for selected building projects.

1. Hamaams

The Niazabad hamaam, a first of its kind, was initiated by SIDP in 1975. The village provided the land and labor. The design, based on a study of traditional hamaams, replaced the communal pool with shower cubicles as required by the government but kept the "in the round" interiors which promoted socialisation during bathing (a function of the traditional hamaams). A separate baby washroom (also used for clothes and utensils) was added because mothers would not take infants into the usually steamy bathrooms.

Fired brick vault and dome technology was used. The Yazdi masons constructed the building simultaneously training local builders (1 from Niazabad) in the technology. The hamaam was turned over to the village for operation and maintenance upon completion. Assistance to construct the Serab Said Ali hamaam was requested by villagers in 1977. SIDP agreed on the condition that water supply improvement be included in the project (the Niazabad water supply proved inadequate). The hamaam design was based on a set of much simplified prototypes developed from Niazabad. The design was a 2 shower unit, expandable to 4 or 6 units with a baby washroom. Only vaults, which were easier to construct ^{than domes,} were used. The hamaam was partially sunk underground to improve its thermal characteristics. The villagers provided land and labour. Local builders, trained in previous building projects and the Builder's Workshop (see Section 4.0 of the "Report" for a description of the Workshop), constructed the hamaam. The village development cadre took over

operation and maintenance of the completed hamaam.

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The Niazabad and Serab Said Ali hamaams respectively cost 66% and 50% of the cost of an equivalent government constructed hamaam.

2. Schools

2.1 Aleshtar Kindergarten

The building was selected and budgeted for by the provincial government and was given to SIDP for execution. The standard government designs provided were changed by DW except for the room types, numbers and sizes which were fixed. The site bordered what was to be Aleshtar's main park.

Fired brick walls, arched lintels and the traditional timber roofs were used instead of steel lintels, roofs of brick jack arches on steel girders, conventional in public buildings (including hamaams). The required 7 and 5 metre wide classrooms were spanned by constructing an arch in the centre to reduce them to the 4 metre modules, the maximum span possible in the local timber. This solution emerged in discussion with the builders. The Selseleh builders were trained in arch technology during construction by the Yazdi masons, the main builders. A traditional ventilator-light catch (Kolah-Farangle) was located centrally as a functional, aesthetic and play element. Small niches were added off the stipulated larger classrooms to provide cosier spaces for the small children. The Education Department took over building operation and maintenance.

2.2 Kaka Reza Primary School

A 2-classroom school was ~~selected and~~ budgeted for by the government and ~~was~~ given to SIDP for execution in 1976. An alternative design with 4 classrooms, office, toilets and semi-covered play yards, made possible from savings in ~~us~~ using the local timber and stone roof, was presented to the village along with the government design to choose from. The former was chosen. It was constructed by an Aleshtar contractor-builder using Kaka-Reza workers. On completion, the building was turned over to the Education Department for operation and maintenance.

3.0 Housing

3.1 Aleshtar Low-cost Prototype House

This house was built in 1977 for the occupant in return for land he had donated to SIDP in another project. The design followed his wishes. The house was constructed out of sun dried mud-brick with vaulted roofs. The moisture and earthquake resistance of the building was improved by stabilising the mud-brick with bitumin and embedding a timber tie frame into the structure. The house was constructed by Selseleh builders trained in vault technology in the preceding year. The Yazdi masons assisted with the larger vault.

3.2 Sarab-e-Amir Guest-Meeting House

This house was constructed in 1977 to accomodate SIDP visitors and provide a venue for meetings. It was funded by SIDP. The house was located along the hill slope to provide a clear view of the whole region.

Local stone with the traditional timber roof was used but the materials and workmanship of a particularly high quality since the building had to demonstrate that a high technical standard and visual image could be achieved even with indigenous resources.

The design was an adaptation of that of a typical village hamlet which suited the building's function. This required interrelated but separable space. It was constructed by the Selseleh builders and the Yazdi masons.

VIII. SIGNIFICANCE OF PROJECT

See Sections 6.0 and 3.1 to 3.2 of the attached "Report" for details.

The Building Program is perhaps the most explicit and comprehensive formulation of indigenous architecture's role in development that has been put into practice. The program's components - a regional and town plan, building construction, research & development and training, and materials' industries - ^{are?} represented the main linkages that architecture has with development. The central principle in implementing each component was

not only to use indigenous resources: design aesthetic, labor and skill materials and technology, collective action, culture and values, but to do so in a way that helped further develop these resources.

The building projects most tangibly illustrate the above. These projects demonstrated that indigenous designs and technologies could be adapted to construct a whole range of basic shelter needs of a developing community in a way that was aesthetically pleasing, culturally and climatically appropriate and technically competent while still being more economical than the modern designs and technologies conventionally used for these buildings. In addition, the projects demonstrated a process of architectural creation which produced a satisfying architectural product from indigenous resources and simultaneously helped develop these resources. This creative process consisted of ^{explicitly} ~~using~~ all the possible complementarities and channels through which architecture could contribute to development.

An example of the complementarities was the implementation of building construction so as to systematically train builders, which in turn made more construction work possible. Examples of exploiting all channels were building construction which simultaneously attempted to: enhance community participation/collective action and extend indigenous designs (e.g., the hamaams); improve or creatively combine indigenous technologies-(e.g. , the bituminised, earthquake resistant mud-brick house and the Kindergarten arch and timber beam roof); instill a cultural self-confidence amongst the people (e.g., the Serab-e-Amir Guest house); be more economical than conventional 'modern' alternatives while also stimulating incomes and employment in the local rural economy (e.g., the Kaka-Reza ^{Primary} School), and train builders in technical and literacy skills (through construction and the Builder's Workshop).

Although most of the ^{above} objectives were achieved in each building project, specific projects were more successful in some aspects than others.

1. Hamaama

The hamaams illustrate the widest range of the above points. A traditional design was adapted in a way that preserved its aesthetic and functional (socialization and health promotion) advantages and at the same time furthered social change in the community. The design incorporated improvements (e.g., the addition of a baby, clothes, utensils washroom) as well as promoted better health practices (e.g., shower cubicles replacing communal pools). Since the showers were installed in a familiar setting (to the villagers), its adoption was met with less resistance from the community. The traditional technology was at least equivalent in technical standard to that achieved by the modern technologies conventionally used (vault and dome with lime mortar in place of steel and concrete). Replicability was made possible by: firstly, developing a set of prototype designs that could be adapted ^{by} ~~for~~ communities with varying populations and incrementally expanded as population increased; secondly, training builders in the technology and how to read drawings (during construction and in the Builder's Workshop) The traditional method of organising collective action (for harvesting) was used by the village to provide voluntary workers for construction. Finally, the resulting hamaams cost less (33 to 50% less) than those constructed ^{by the Govt.} using modern technology and were aesthetically more pleasing which enhanced the community's self-confidence in indigenous technical and cultural expressions.

2. Aleshtar Kindergarten

This project demonstrated that new technical requirements do not necessarily imply the abandonment of traditional technologies in favour of

supposedly more advanced ones. An innovative combination of two or more traditional technologies may adequately meet these new requirements. The 5 and 7 metre brick arches across the center of the classrooms combined with timber beams spanning on them from each end wall was such an innovation. It overcame the 4 metre span limitation of the local timber cited by the provincial engineers as their reason for abandoning this form of roofing. The fact that this simple yet ingenious solution was suggested by the builder's demonstrated their creativity in manipulating indigenous techniques if put to the test.

3. Kaka-Reza Primary School

This project most effectively demonstrated the twin advantages of larger facilities (or conversely, savings accrued) and the enhancement of local incomes and employment that could result from choosing indigenous building technologies. The budget intended for 2 classrooms in brick, steel and cement instead financed 3 classrooms, a living quarter for the teacher(s), an office, toilets and 2 semi-covered play yards in local stone, lime mortar and timber. At least 80% of the total budget was expended locally thus generating incomes and employment (payments to stone quarriers, tree owners and cutters, lime kiln owners and workers in addition to construction labour and skills). By comparison, the conventional technology may at best have provided temporary employment for some unskilled workers. Most significant, the indigenous alternative was chosen by the villagers indicating that the apparently modern technology is not always the inevitable choice if both choices and their implications are clearly known. This fact was reinforced in the subsequent year when an increased number of villages made the same choice.

4. Aleshtar Low-cost Housing Prototype

This building demonstrated that apparently serious defects in an otherwise obviously appropriate and economical indigenous technology can

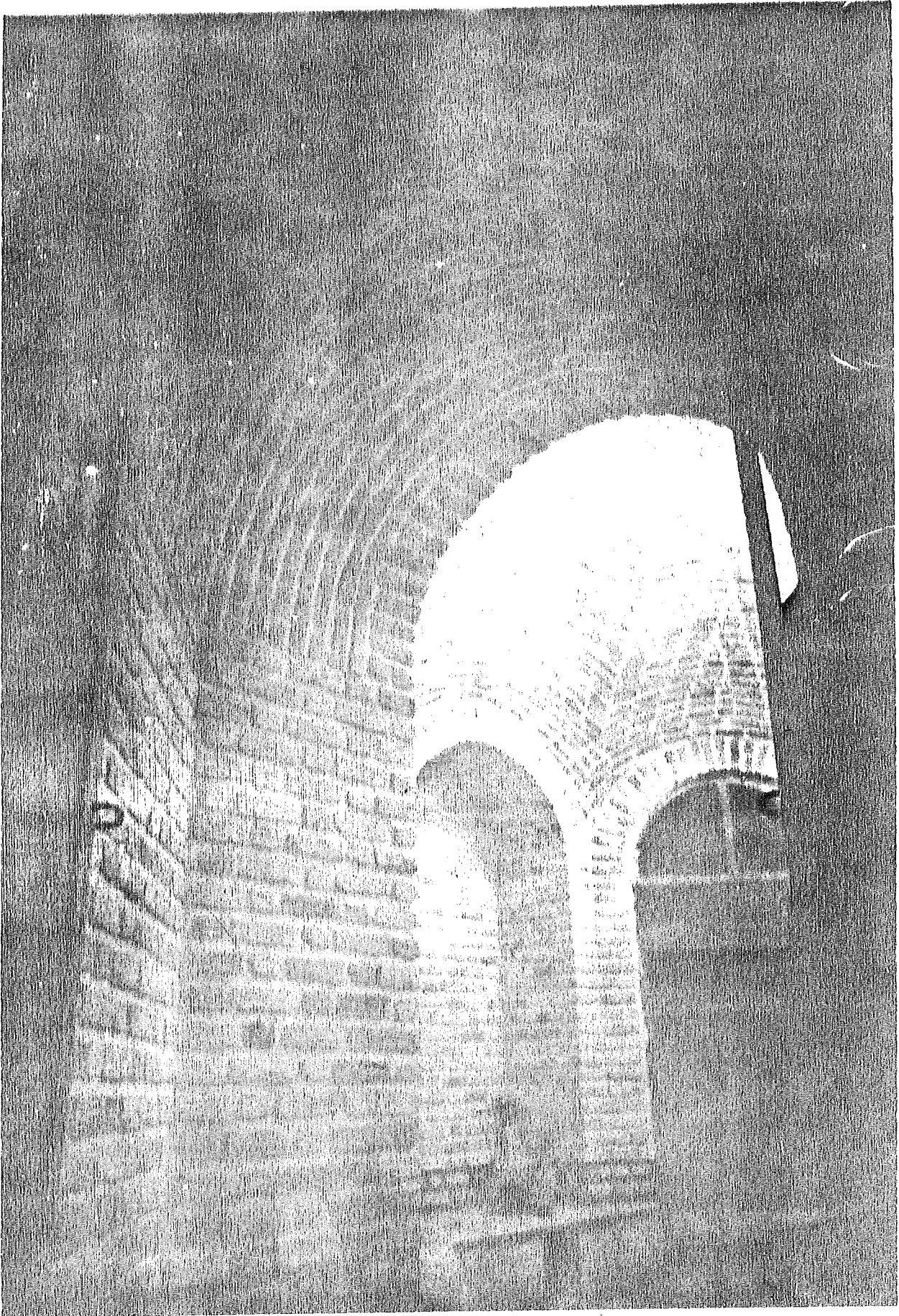
sometimes be overcome by quite simple modifications, in this case, one novel and the other a revival of an indigenous technique. Sun-dried mud-brick walls with vaulted roofs is probably the most widely applicable and cheapest housing technology needing only mud and straw, two freely available materials. Its two serious defects - poor moisture and earthquake resistance - were respectively addressed by stabilising the mud with bitumin (2 to 5%) and imbedding in the walls a timber ring beam and post tie frame.

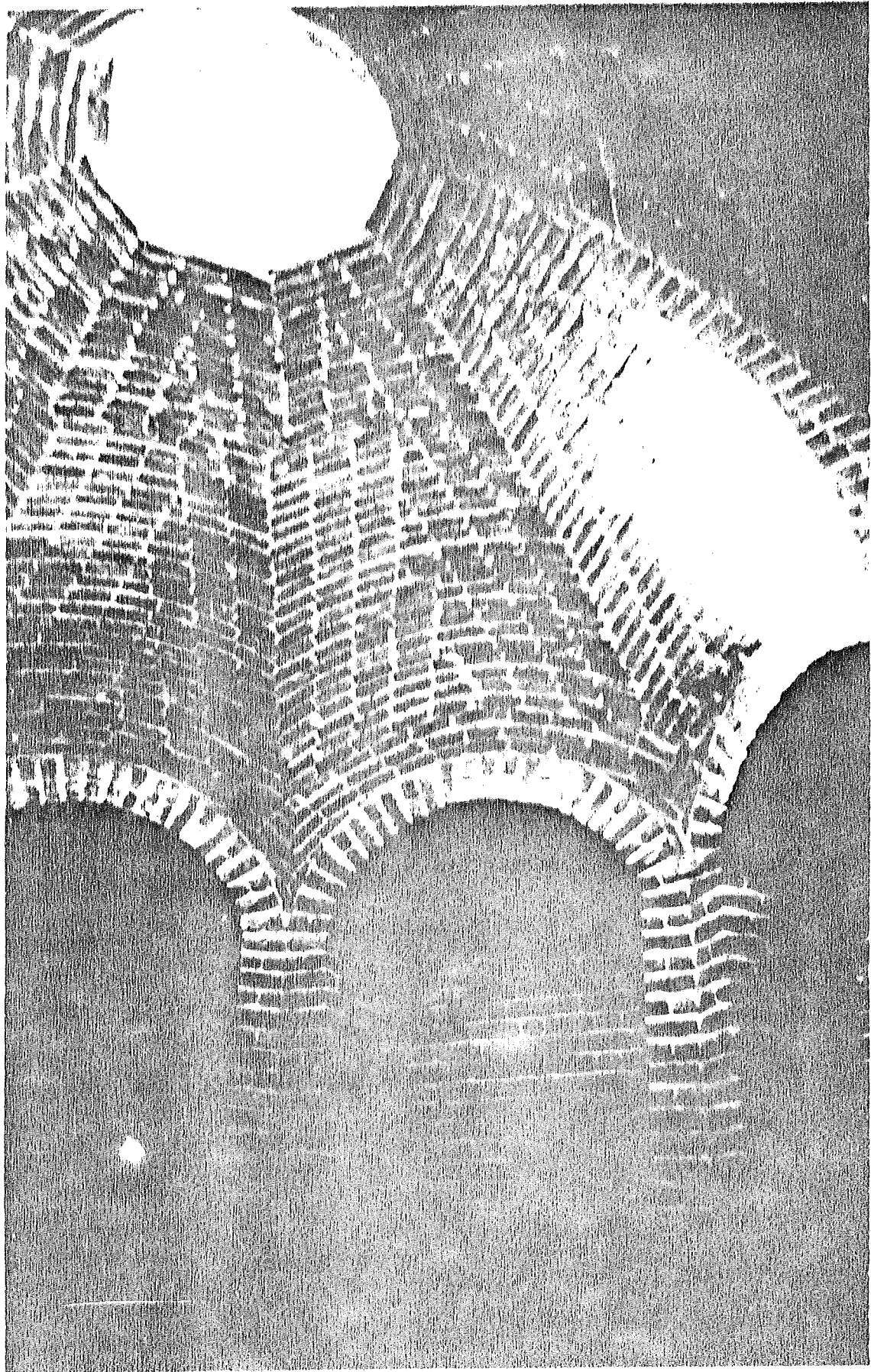
The house has withstood several winters of severe rain and snow, in a No tremors have tested its timber frame system but a subsequent survey of earthquake damaged structures in another region, DW found that those buildings using the traditional tie frame had fared much better than others.

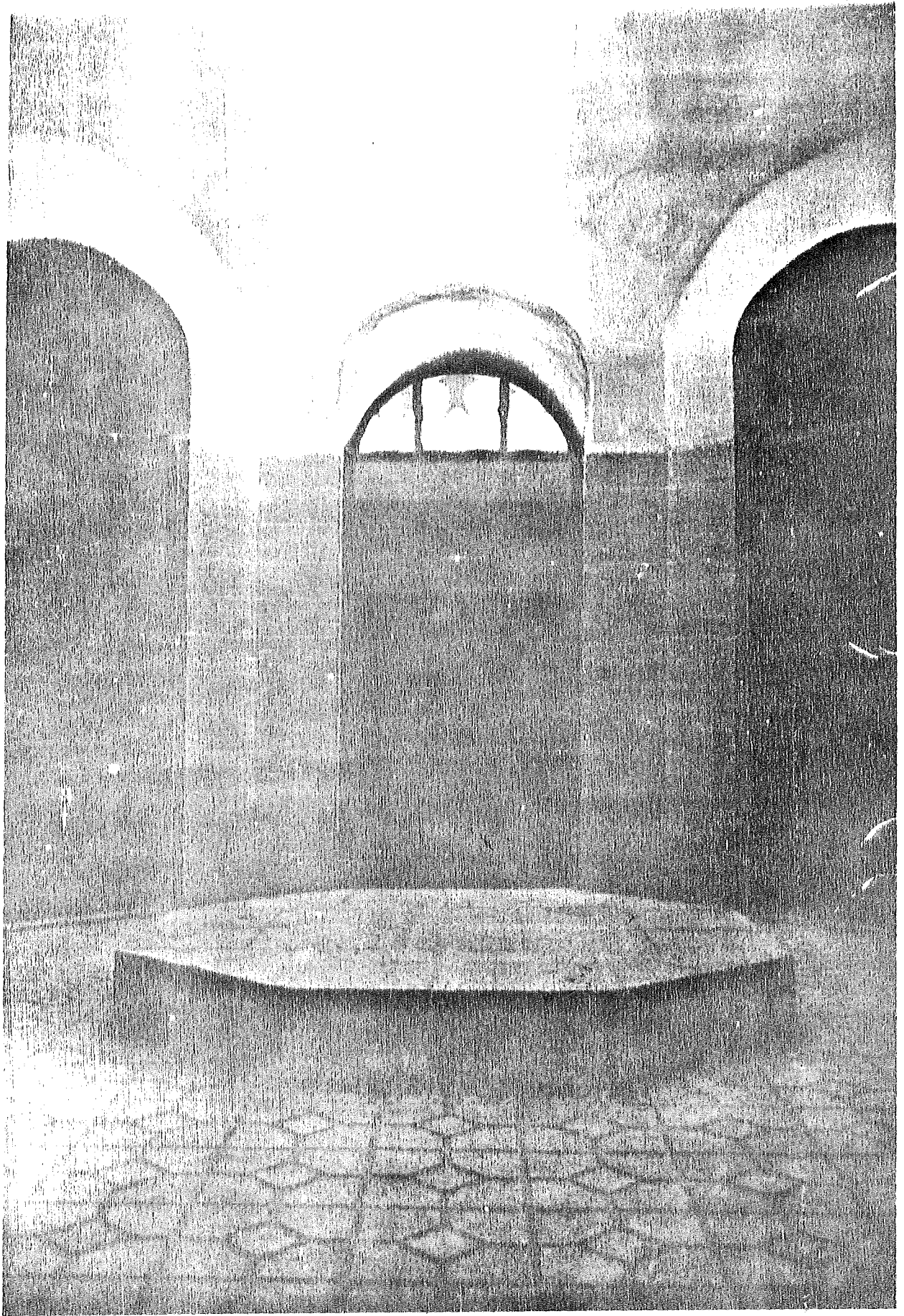
5. Guest Meeting-House at Seab-e-Amir

By achieving a high technical standard and impressive visual image, this house demonstrated that indigenous technologies were not necessarily synonymous with second best for low-income people. It countered the status reasons for rejecting indigenous housing types. It showed that even when a budget building was generous and high quality was required (as in some public buildings and houses for the wealthy) the use of local resources could result in that required quality. At the same time, it remained cheaper than an equivalent house using steel and cement.

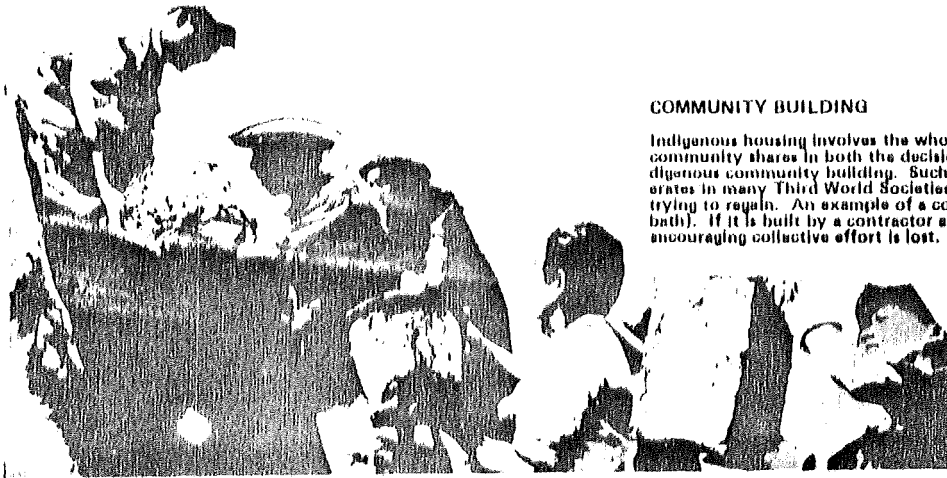
Two episodes underscore the impact of this house and the building projects preceding it. The Selseleh builders had constructed all but the largest arch in the building which they were instructed to leave to the Yazdi masons. On the day that arch was to be constructed, it was presented to DW flawlessly executed by two slightly nervous but proud local builders. An increasing number of private houses in the town had also begun to adopt indigenous elements such as the arches in place of steel lintels. Both a skill in an indigenous technology and a pride had been revived amongst some of the Selseleh people.







Community Building IRAN

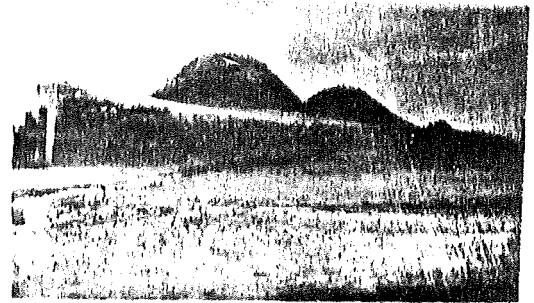
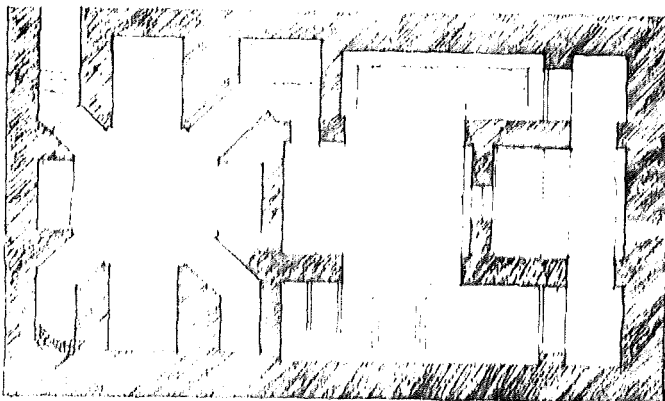


COMMUNITY BUILDING

Indigenous housing involves the whole family in the building process. Similarly, a community shares in both the decision making and building process and use of indigenous community building. Such participation is a positive force that still operates in many Third World Societies; a force that the West, having lost, is now trying to regain. An example of a community building is the "Hamam" (public bath). If it is built by a contractor and placed in the community, potential for encouraging collective effort is lost. If the design is a row of shower cubicles facing a corridor then its traditional function of people socialising while using it, is also lost. Such buildings should be constructed with the help of the community, and their design should develop on an understanding of how the traditional design relates to their social use.

INDIGENOUS PUBLIC HEALTH

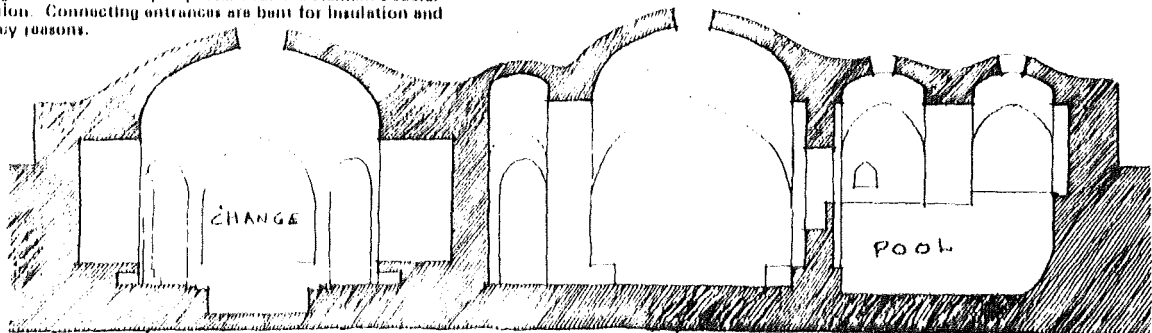
The traditional public bath as a social and health institution has long played an important role in the lives of Iran. People come together in the Hamam to bathe, massage, smoke and chat at leisure. The presence of a Hamam makes personal hygiene much easier.



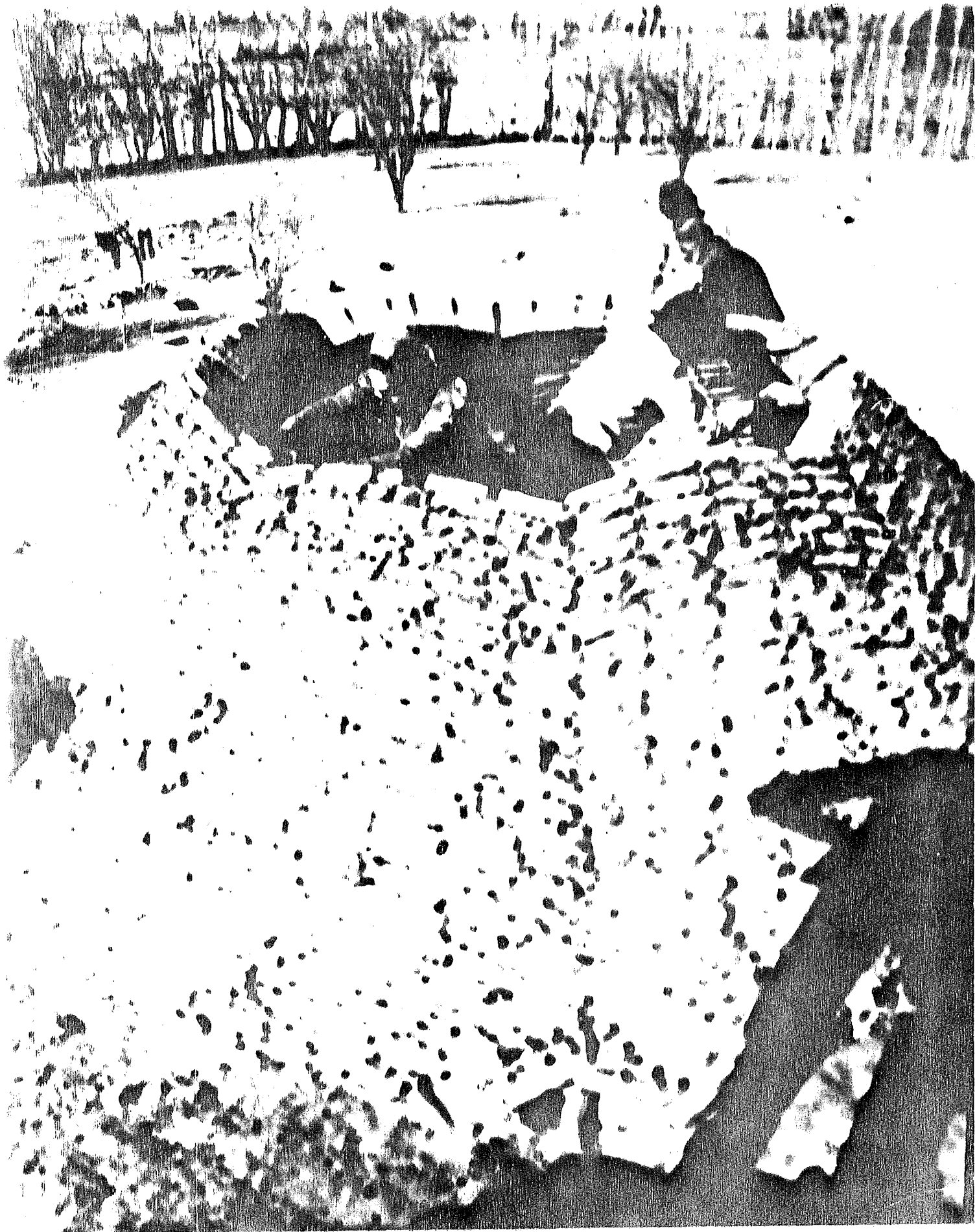
Raised entrance and the domes over the changing and bathing rooms are the only visible part of many traditional baths. Baths are below ground level for insulation and to allow water supply to flow by gravity.

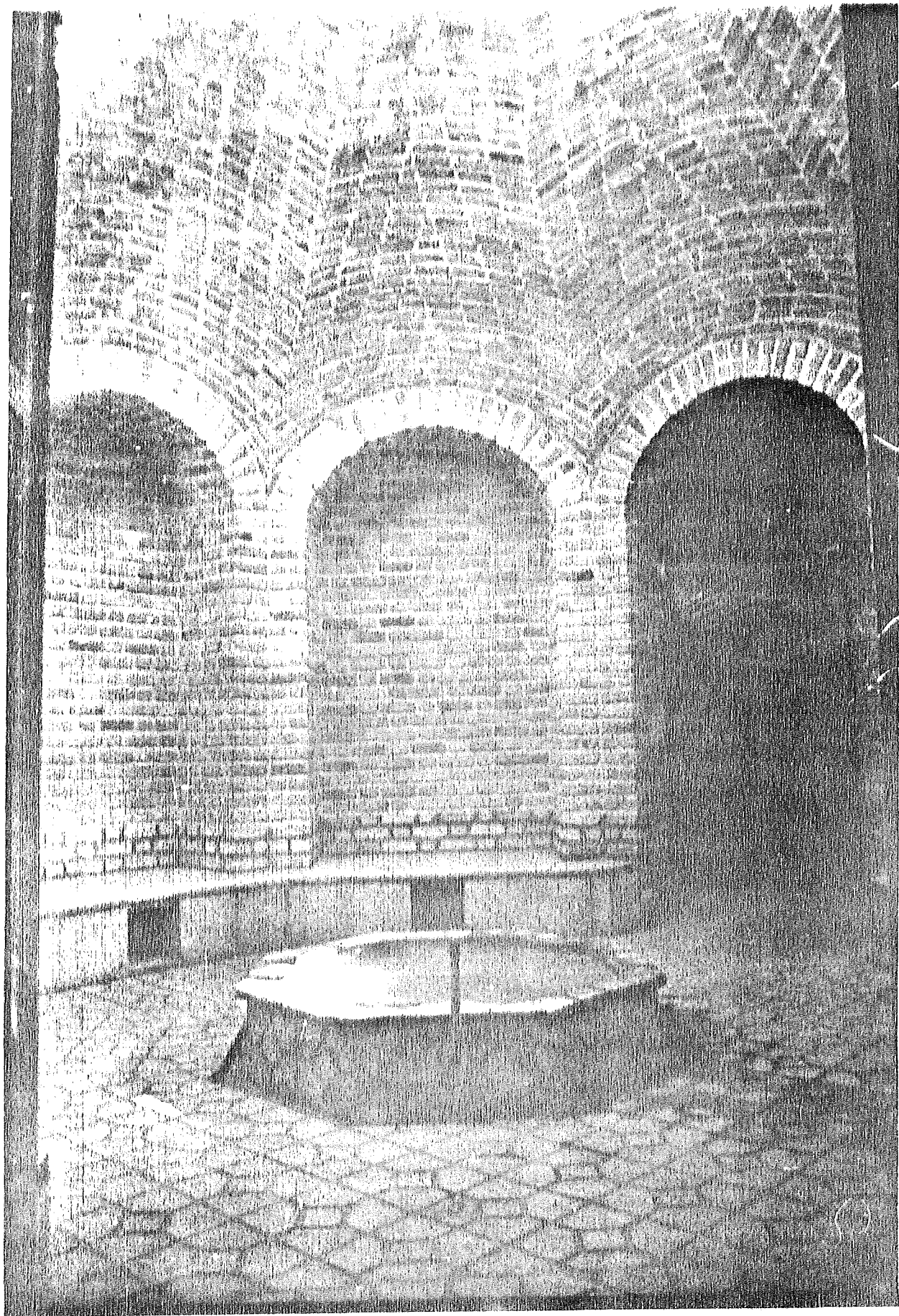
DESIGN THE TRADITIONAL HAMAM

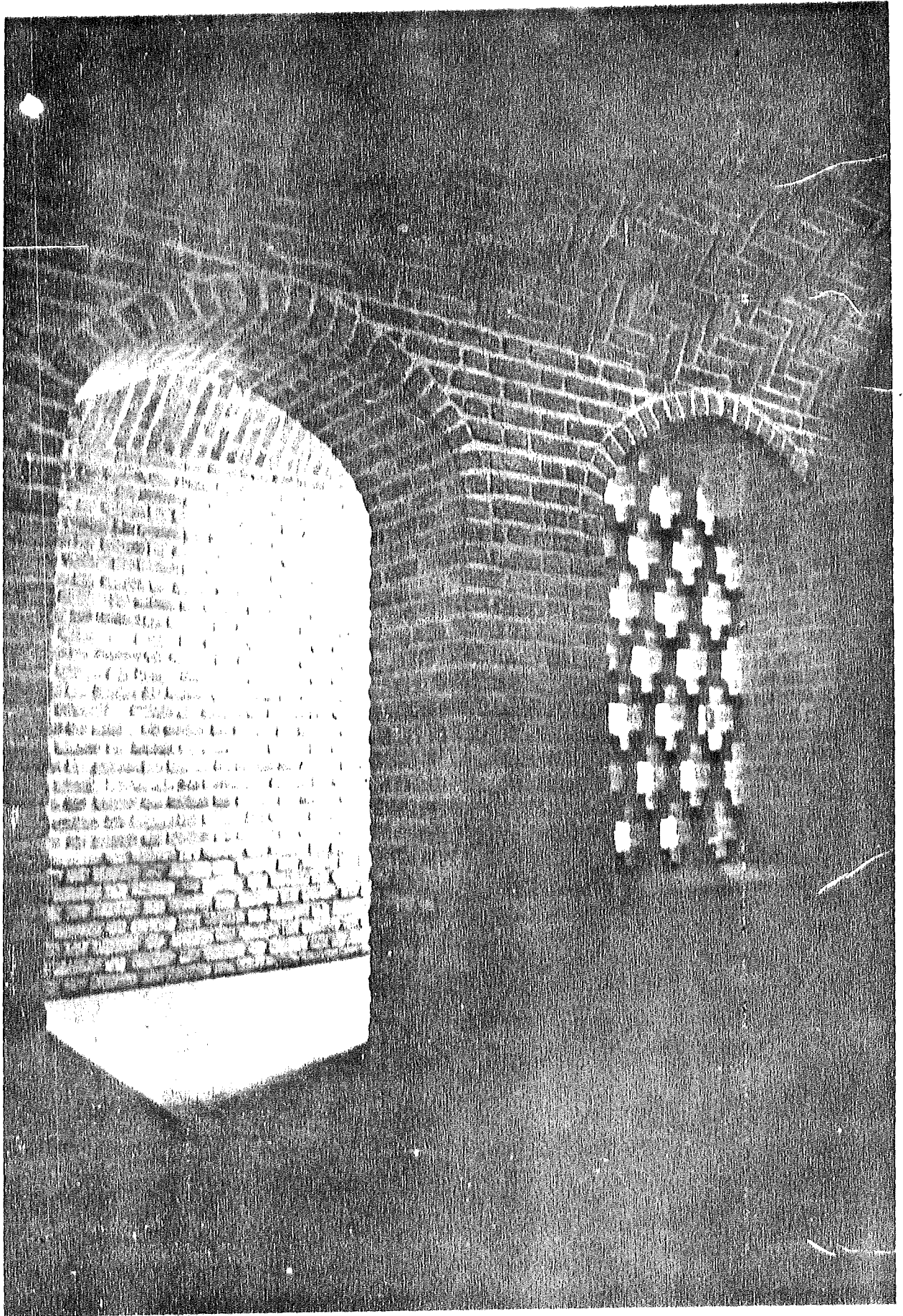
A Hamam has a minimum of two rooms. The first is a changing room, where people sit on raised slabs in niches around the walls, facing each other and a central pool, which acts as a foot bath. The second is the large bath room which has similar raised seating slabs round the walls, a communal hot bath pool and a rinsing pool. This partly open plan arrangement with people facing each other is very important for the Hamam's social function. Connecting entrances are built for insulation and privacy reasons.

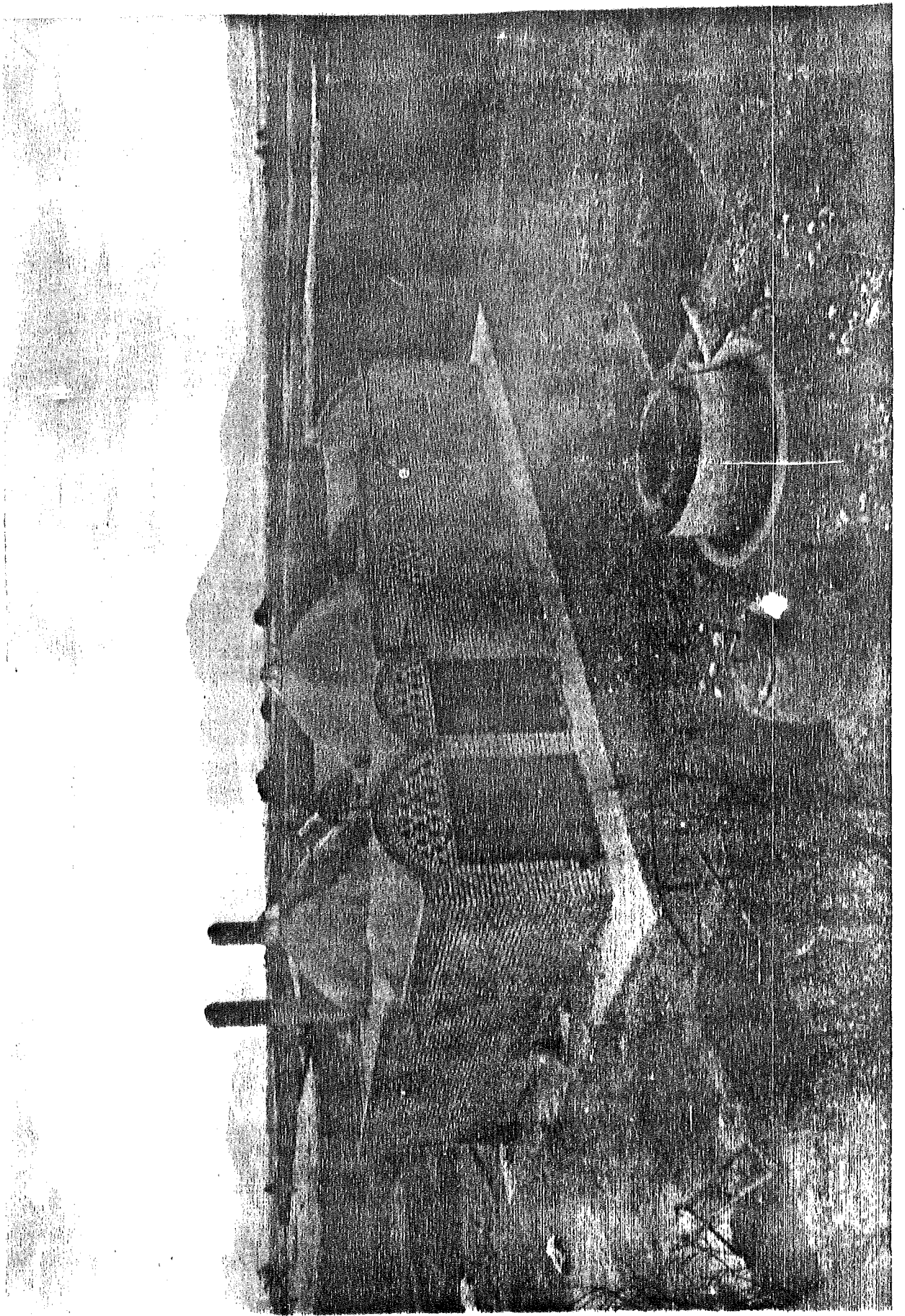


TRADITIONAL BATH IN ALASHTAR, LURISTAN, IRAN









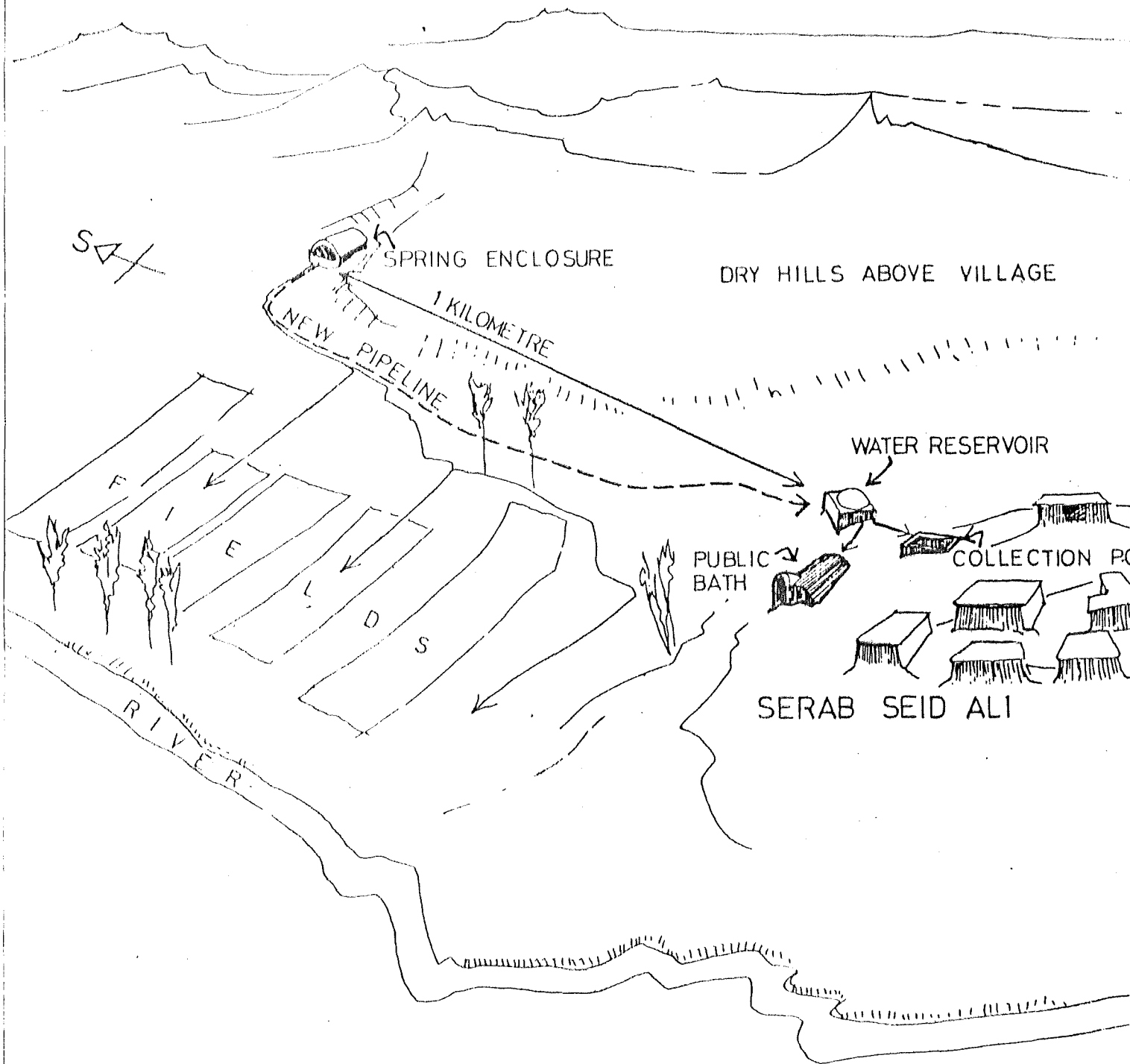
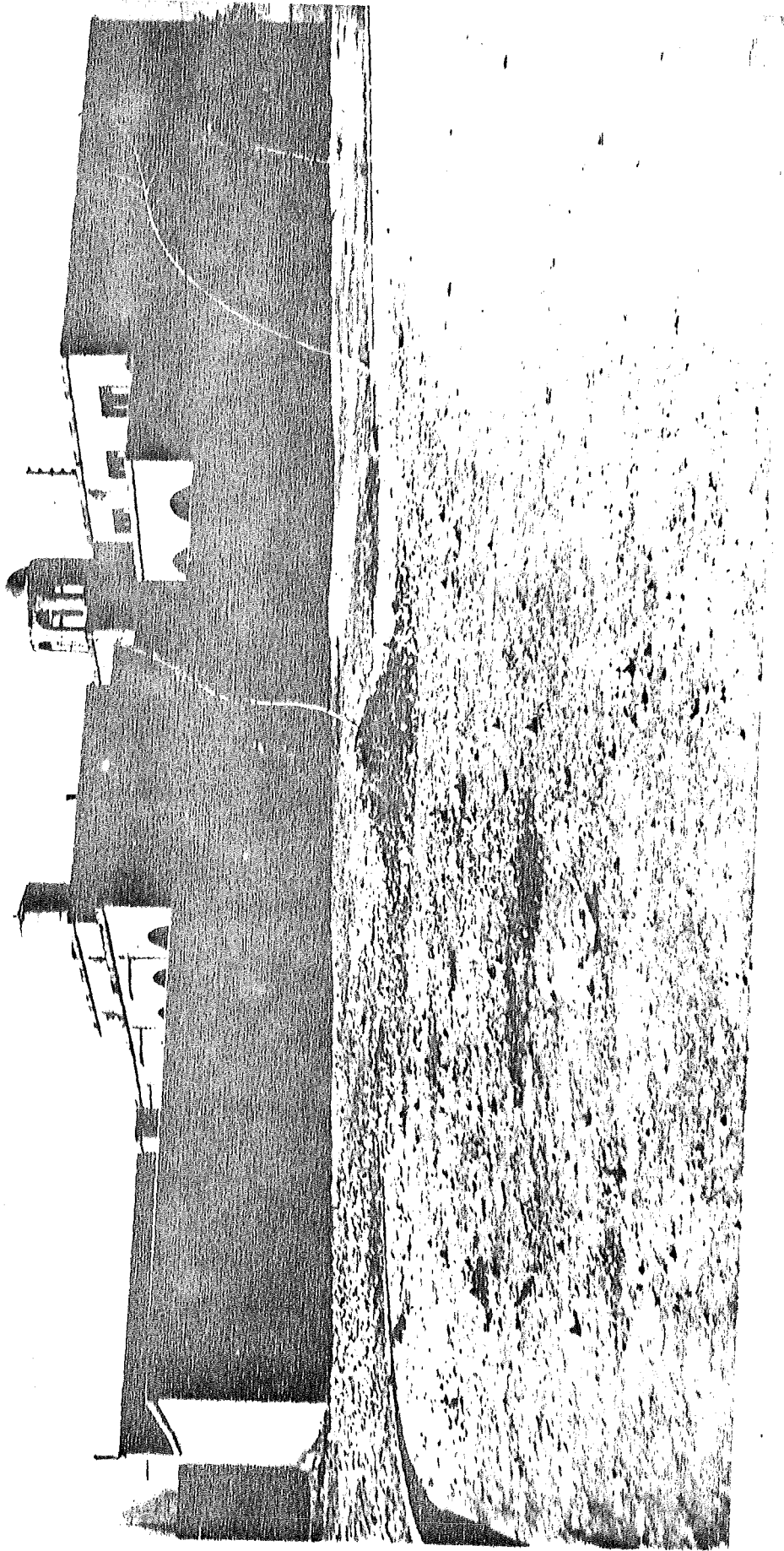
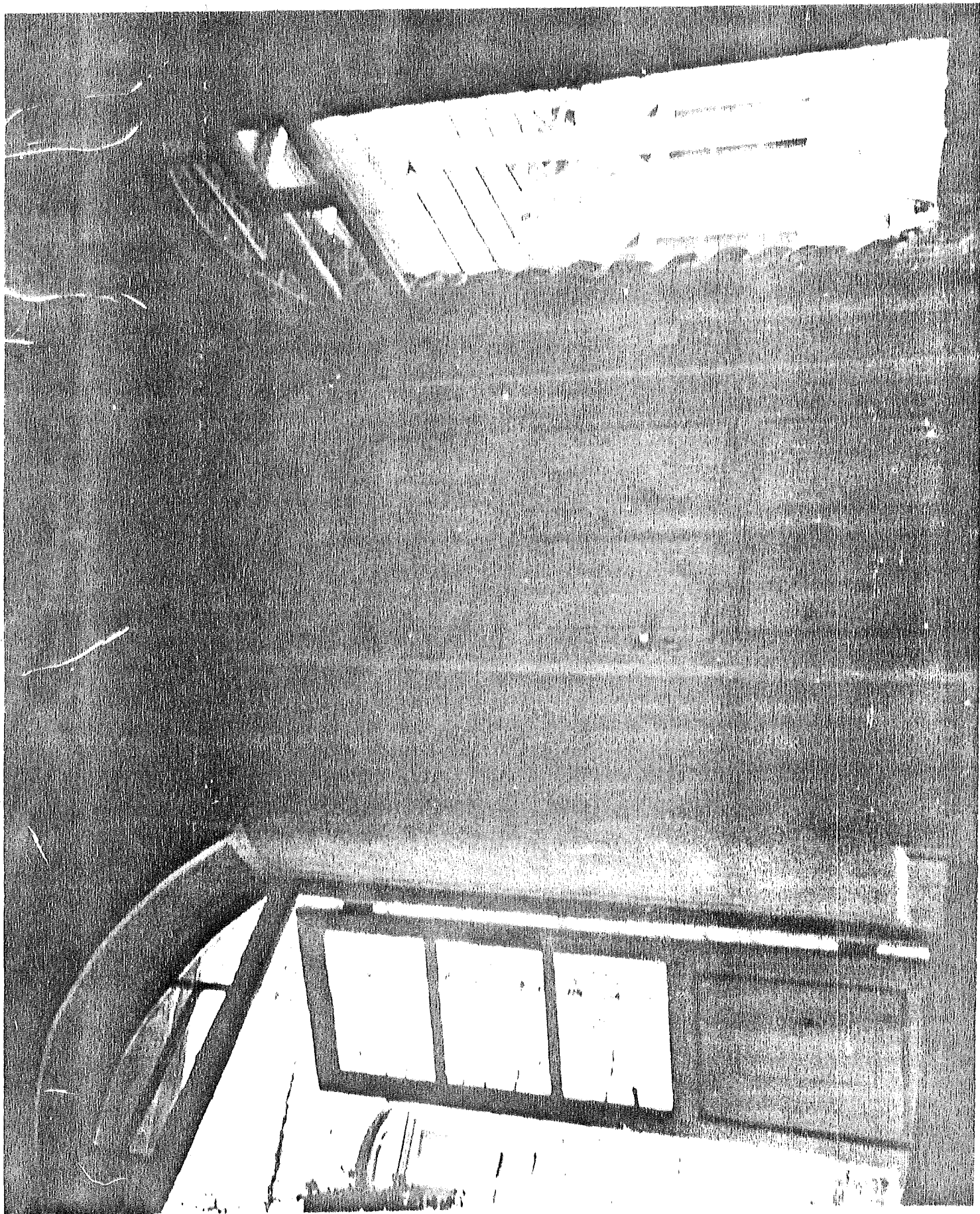
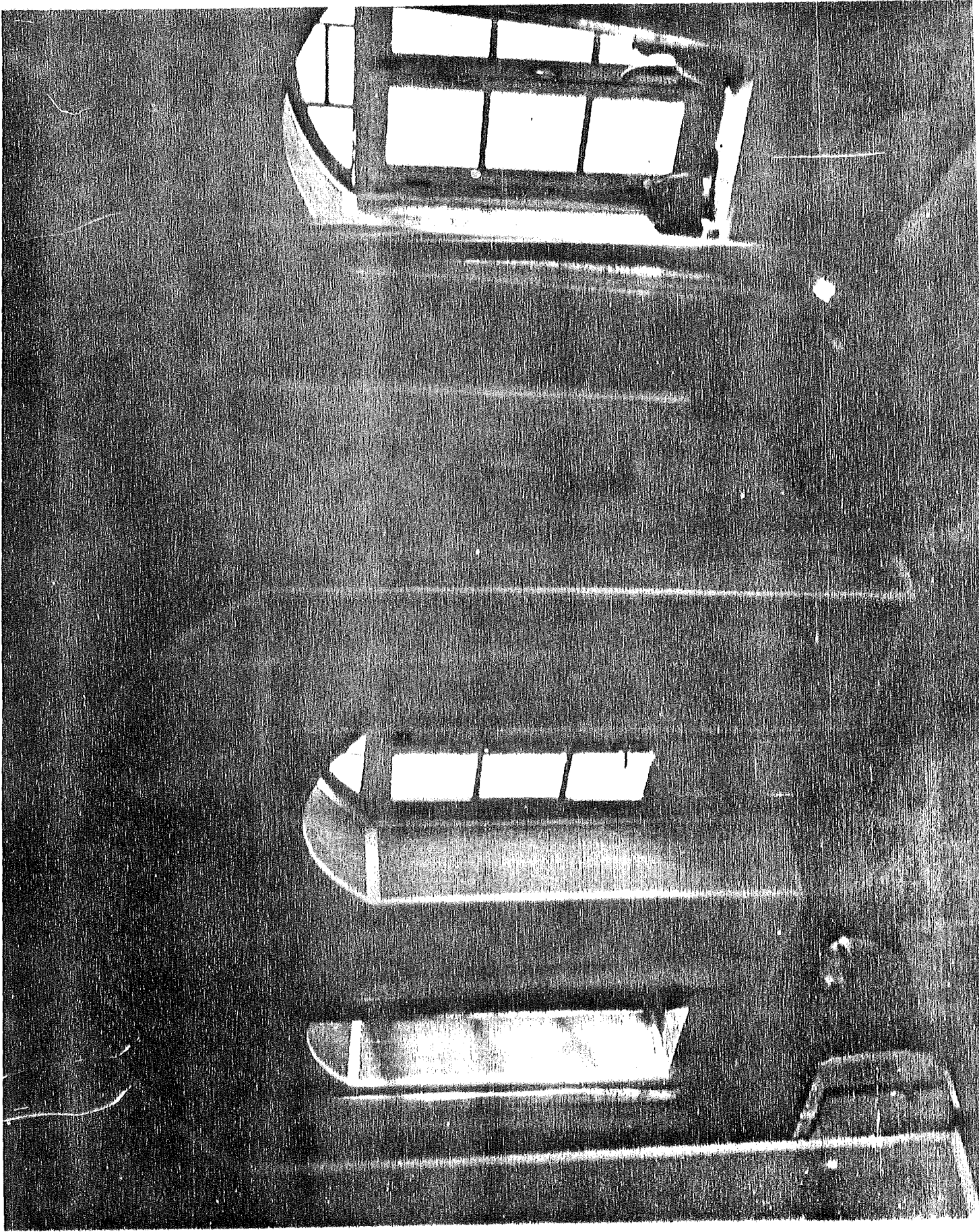


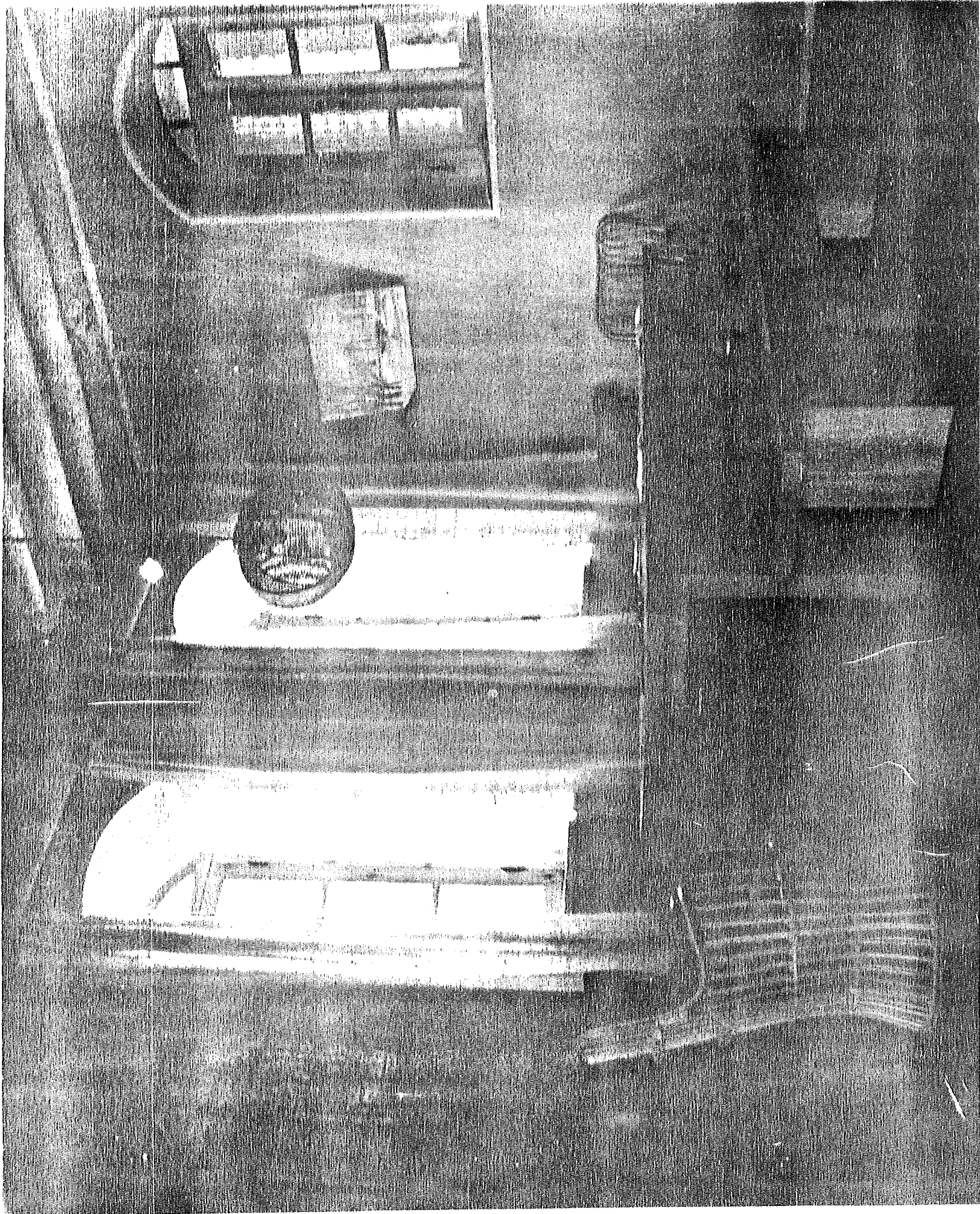
Fig 9 DIAGRAMMATIC LOCATION OF
 NEW FACILITIES IN SERAB SEID ALI











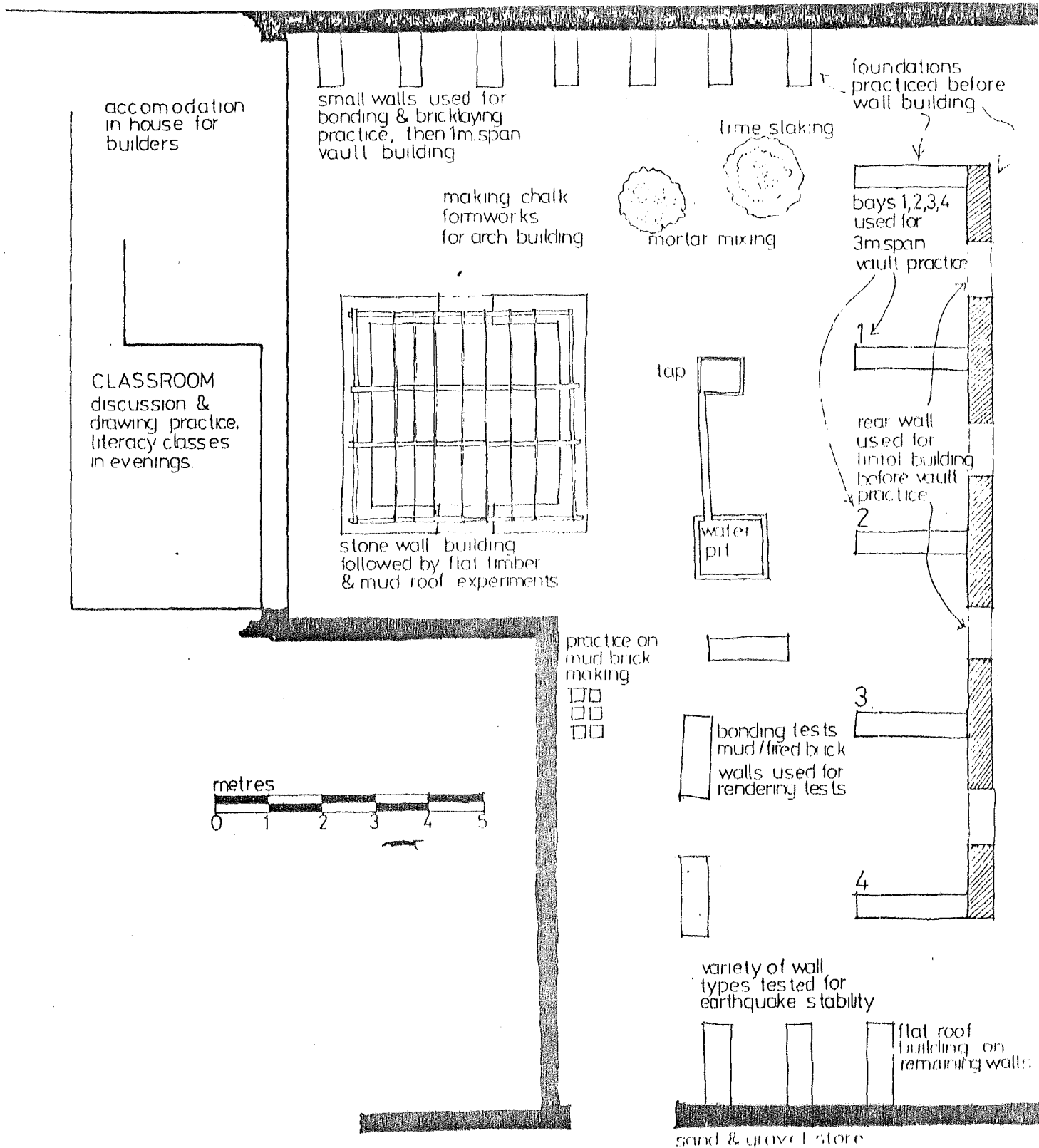


Fig 2 LAYOUT OF BUILDERS' WORKSHOP

