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Space Is Where You Find It. A Study To Determine the Educational Potential of a Retired Government Testing Laboratory.

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Communities are looking to non-educational buildings for schoolhouse use. This report looks at the Frankford Arsenal Gauge Building in Philadelphia. Implications of the two-day workshop and the resulting study by educator, educational consultant and architect is both specific and general and serves as a starting point for school districts offered free buildings to help them in their search for good educational environments. The Gauge Building was the focus of several educational alternatives--(1) high school overflow space, (2) 9th grade housing, (3) an elective study center, (4) complementary high school courses for 800 students, and (5) after school functions. Physical values of the Gauge Building are analyzed in terms of a numerical framework within which a building's physical potential for renovation may be approximately determined. Inherent opportunities include important savings in time and cost, community improvement, and a strong educational idea. (LD)

space is where you find it

a study to determine the educational potential of a retired government testing laboratory

prepared for
THE SCHOOL DISTRICT
OF PHILADELPHIA

and

THE RESEARCH COUNCIL
OF THE
GREAT CITIES PROGRAM
FOR SCHOOL IMPROVEMENT

by

CAUDILL ROWLETT SCOTT

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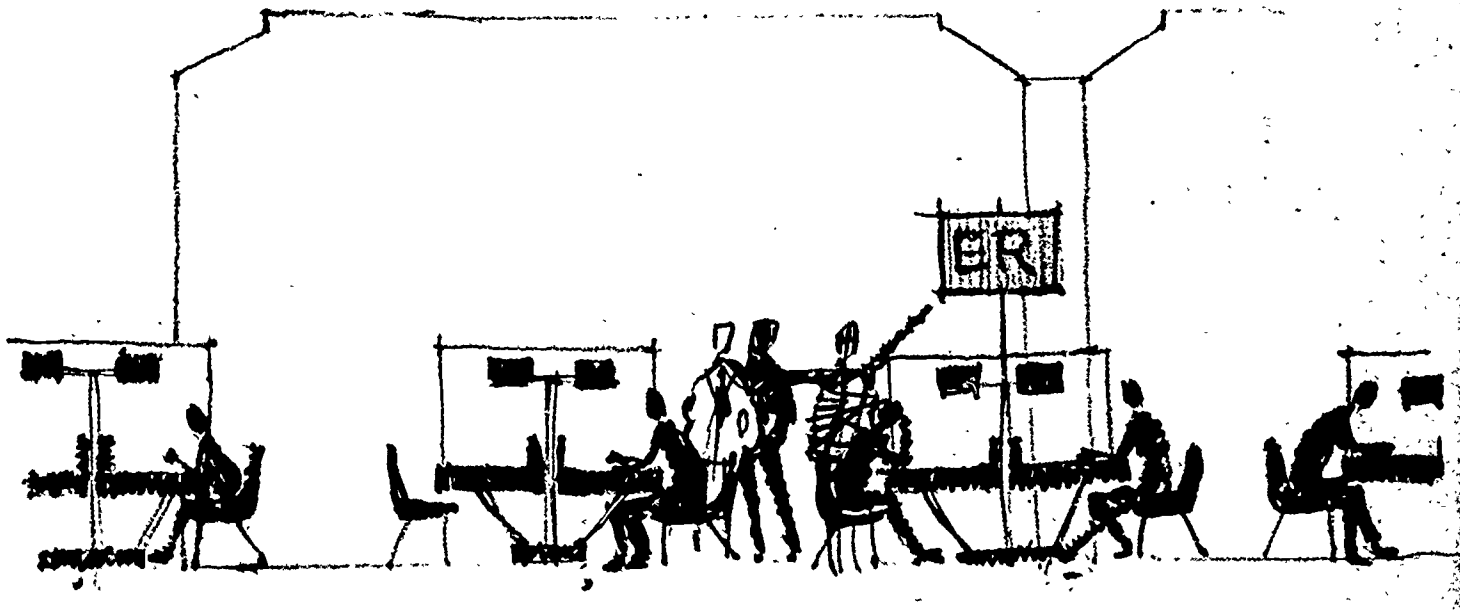

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space

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is where you find it

"Space is where you find it, and more and more communities, large and small, are looking to non-educational buildings for schoolhouse use. The Research Council of the Great Cities Program for School Improvement, recognizing this urgent need, has made a creative approach to this type of space a part of its 'New Life for Old Schools' study. This report looks at one building in one city -- the Frankford Arsenal Gauge Building in Philadelphia--but the implications of the two-day workshop and the resulting study by educator, educational consultant and architect is both specific and general and serves as a starting point for school districts offered free buildings to help them in their search for good educational environments."

Ben E. Graves

Project Director, School Facilities
The Research Council of the Great
Cities Program for School Improvement

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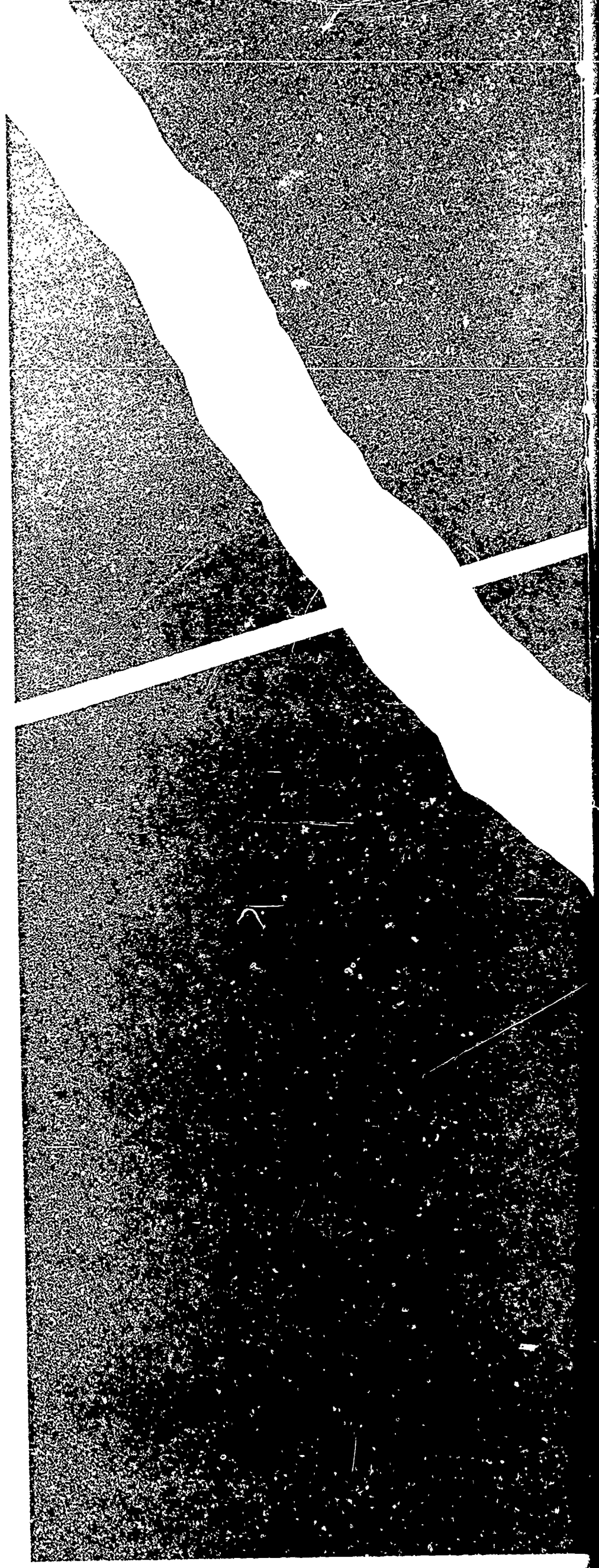


SCHUYLKILL RIVER

Front St.

"B" St.

Market St.

Allegheny Ave.

Frankford Arsenal
Gage Building

Wyoming Ave.

Roosevelt Ave.

DELAWARE RIVER

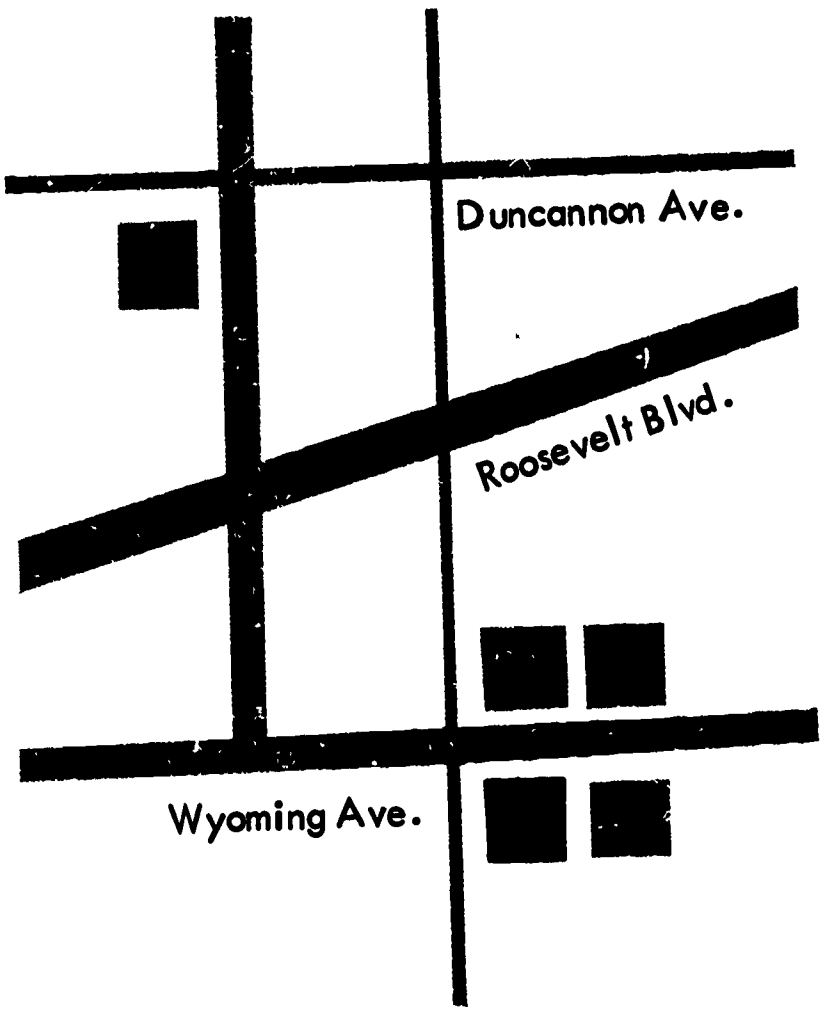
1 objective criteria

Located at 238 E. Wyoming Avenue, the Frandford Arsenal Gauge Building is a retired government testing laboratory. Built originally in 1925, added to in 1942 and again in 1944, it now contains some 80,000 square feet distributed unevenly over three stories and occupies a site of 1.7 acres in the heart of Philadelphia's School District No. 7.

It has as neighbors the Barton Elementary School, Feltonville Recreation Center and a branch of the Philadelphia Public Library. The building's geographical relationship to these facilities and to Olney High School is shown below.

The Philadelphia School District is now applying to the Secretary of Health, Education, and Welfare for fee simple title to the premises.

Despite the best intentions, "free gifts" sometimes prove to be expensive liabilities. When involving the transfer of real property, such gifts may carry with them the responsibility for improvement and maintenance beyond the point of economic feasibility. A building inadequately or inappropriately renovated offers little return to its users and becomes, before long, a source of increasing irritation and embarrassment to its community.



1. Olney High School
2. Feltonville Recreation Center
3. Public Library
4. Barton Elementary School

It is therefore essential that responsible school officials, though pressed by classroom overcrowding, make cold, critical appraisals before accepting such gifts and employ reliable criteria in assessing the useful potential of any such building.

The establishment of reliable criteria depends in turn on reasonably accurate determinations of a building's physical and aesthetic potential as well as an intimate understanding of the functional aspects of educational planing. Thus, we may ask:

1. What is the physical value of this building vis-a-vis comparable new construction? How much of this building is reusable, and how much must be added anew?
2. What must be done to bring the building up to satisfactory aesthetic standards -- to make it an acceptable environment for learning and a welcome addition to its neighborhood?
3. Taking into account gross area, bay size, ceiling heights and other physical limitations, what educational activities can be most effectively housed here?
4. What are the alternatives? How much time, money, and effort must be expended in the assembly and acquisition of a different site?

The principal purpose of this study will be to develop and apply these criteria to the Frankford Arsenal Gauge Building in an effort to explore its potential usefulness to the Philadelphia School District. If it is also helpful to school boards in other cities facing similar decisions, we will feel doubly rewarded.

2 educational alternatives

On March 27, 1968, a two-day seminar was convened in Philadelphia under the sponsorship of the Great Cities Program to explore the educational potential of the Gauge Building. Educators, educational consultants and architects brought their varied experience to bear on this inquiry.

The most pressing educational need, as stated by the representatives of the School District of Philadelphia, is to find overflow space in an effort to relieve overcrowding at nearby Olney High School where student enrollment, now at 4,100, is already 25 percent above the rated capacity. It was further stipulated that the new facility, whatever its specific program use, would not be a miniature replica of Olney -- a displaced segment of the high school. It would have its own program and its own identity.

As discussion progressed, secondary objectives began to crystallize. There was a consensus among the participants that any future program should:

1. Offer courses for about 800 students per day that would complement rather than compete with the Olney curriculum.
2. Develop an after-school function oriented toward the adult community or some important sector of it.
3. Make common use of adjacent educational facilities.
4. Realize ultimate use as a District 7 Educational Enrichment Center upon completion of a new high school now projected for the mid-1970's.

Several ideas of varying degrees of feasibility were generated during the course of discussion. Among these was the proposal that the Gauge facility be developed as a full-time annex to Olney with parallel programming and scheduling. One distinct element of student body, such as the ninth grade, would be housed here on a more or less permanent basis. While objection can be made to this proposal on the grounds that

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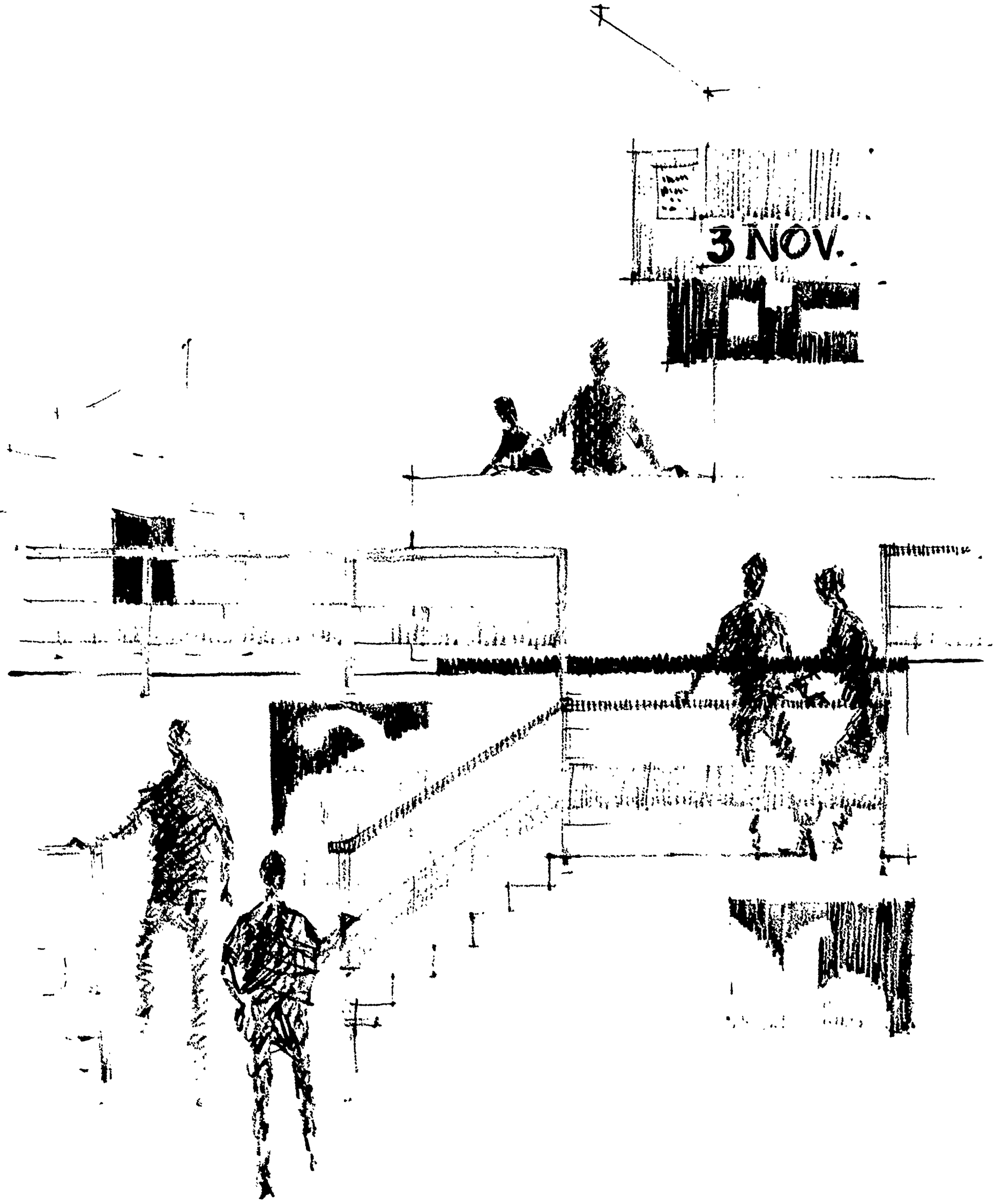
it creates an unwelcome dislocation, it provides the most immediate relief of overcrowding at Olney and should remain a possible alternative for this reason alone.

The most compelling idea to emerge from the seminar was the proposal that the Gauge Building be developed as an Elective Study Center. In such a Center, students would be encouraged to pursue a wide variety of elective interests with as much freedom of choice as possible.

Each student would be assigned carrel space as a home base. From there, he would branch out to lecture, seminar, studio or independent study. This fluid, unconventional learning situation (with its obvious attendant difficulties) promises a kind of open-ended and enriching educational opportunity well beyond the conventional school experience. While individual initiative is encouraged, emphasis is also placed on lively interaction between groups of students and faculty.

Specifically, the Gauge Building should be remodeled to create a combination of educational spaces having as it "heart" large loft like spaces given over to student carrels. Individual carrels would be "hot and wet" -- equipped with plumbing and wiring for use with electronic teaching aids. Surrounding this "heart" would be clusters of classrooms scaled to accommodate groups of widely varying sizes. Special conversational spaces should be set aside to encourage informal exchange and interaction among students. Laboratory spaces for the physical sciences will have to be provided, and it is noted that a substantial amount of laboratory equipment is inherited with the building. Courses will be offered in graphics, film-making and photography, and each will require specialized spaces. Space should be allocated for physical education as well. Classes in modern dance, gymnastics, fencing, etc. would be housed in an atmosphere much like an urban health club, while more ambitious P.E. programs could be scheduled at the nearby Feltonville Recreation Center. A small theater with modest stage facilities should also be programmed.

Specialized spaces should be provided for staff and faculty as well. These should include teacher training areas and program preparation areas where students would meet


3 NOV.

with faculty and assist in drawing up future curricula. These might also serve as "academic green rooms" where groups of students and faculty could meet informally with visiting lecturers and artists.

The Public Library across Wyoming Avenue may serve as an instructional resource center.

In short, the curriculum would be composed of courses and materials not within the scope of, but beyond, the usual high school programs. The Gauge facility would in no way compete with Olney's curriculum. Instead, it would elaborate, enrich and enhance. It may also become a prototype for any school district offered this kind of non-educational space.

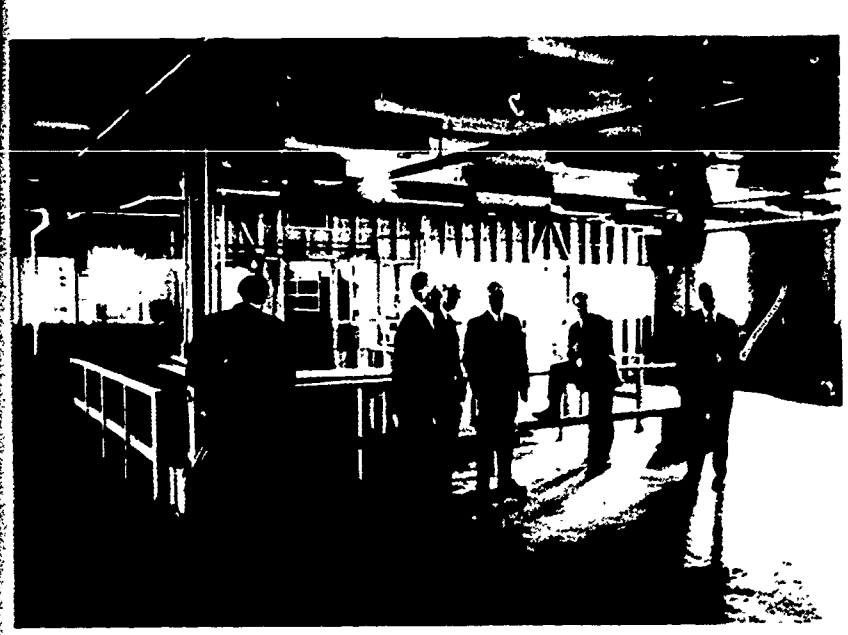
If utilization is set at 800 students per day, then each Olney student will spend one day per week in the Gauge program and the remaining four in the high school. The primary objective -- reducing the overcrowding at Olney -- will be realized, and a regular sequence of elective study can be scheduled.

As no facility for the preparation of hot meals is anticipated, lunches should be furnished by the high school, or if this is impractical, by vending machine caterers who would be under contract to the School District.

The question of programming the facility for after school hours will require a close study of local needs. Consideration should be given to programs in "continuing education", as well as programs structured for some significant portion of the adult community such as teenagers or senior citizens.

A new high school for District 7 is projected for the mid-1970's. It will hopefully include in its curriculum programs parallel to those now planned for the Gauge facility. Upon completion, the Gauge Building will become a District 7 Educational Enrichment Center. Its ultimate use would then be to provide a center for the training of teachers and administrators in curriculum development, information retrieval, program research and supplementary programs.

3 aesthetic challenge



Aesthetically, the Gauge Building is cast in an almost vernacular style of factory/warehouse construction familiar to city dwellers across the United States. Its heavy masonry construction has insured it long life. Its lack of aesthetic pretension has kept it from becoming "dated". But it has suffered the fate of its own durability -- that is, it has outlived its usefulness. Social and economic values are passing it by.

The community is confronted with two choices. It can watch the building deteriorate in the familiar pattern while allowing it to house a series of lower and lower grade functions, or it can intervene actively with physical rejuvenation. Assuming the latter alternative, the aesthetic challenge can be simply stated:

Find a way to bring the building up to the point that 1) students will welcome an opportunity to study here, and 2) the community at large will regard the Gauge Building as a substantial asset to the neighborhood.

As it now exists, the Gauge Building expresses itself aesthetically as two separate entities in uneasy contiguity. The three-story northern portion fronting on Wyoming Avenue is characterized chiefly by an articulated structural grid of column and slab. Filling out the skeleton are non-structural panels of brick which in turn have been punctured erratically to provide windows.

The southern portion, by contrast, is a combination one, two, and three-story edifice of brick without structural clarity or visible rhythm. This division is reinforced internally by the use of different structural bay sizes and columns of different size and section. An attempt has been made to graft the two halves, but the seam is apparent.

The expense of demolishing and rebuilding the outside walls of either section precludes external unification and suggests as an alternative that the two halves be frankly expressed as separate but related elements. This may be accomplished by creating an internal court at the juncture of the two which might be landscaped and used for outside study activities. It might even be developed in time

into a pocket-sized botanical garden. The link between the two elements would simply be a glazed and covered arcade. This treatment would provide an internal focus of unusual interest and improve the massing of the whole composition.

The unrelieved, planar treatment of all the elevations creates a rather uninteresting geometry which reflects the lack of aesthetic concern common to buildings of this type. It should not be left, however, to hamper the building's projected use. While the structural grid should not be violated, some of the brick infill panels can be removed or replaced without unreasonable effort or expense. If the first floor panels along Wyoming Avenue (the main approach) were replaced by glazing much of the tough, indigestible character of the building would vanish. In addition, an inviting vista would be created from Wyoming Avenue through the ground floor exhibition spaces into the interior court with its sun and planting.

A main traffic entry point should be established off Wyoming Avenue at the side of the proposed court. Here, buses would pick up and discharge students in comparative safety, and visitors would be introduced to the building at a convenient central location.

Both the new off-street entry and the internal court will assist in creating a new image for the building that will be helpful from the outset in overcoming community apathy and arousing student interest. These points should not be minimized as each is fundamental to the success of the new facility.

Greenmount Cemetery, butting the property on the east, acts as a wedge between the Gauge Building and Barton Elementary School, but its grass and shade trees provide welcome and continuing greenery.

Internally, the building's spaces are loft-like and unadorned. Their uncluttered spatial quality makes them especially well suited for conversion to educational use as they are subdivided by flexible partitioning according to specific program need. The use of carpeting, color and bold graphics can effectively create an entirely new atmosphere within the building. The 30-foot framing bay and the generous fenestration contribute to forming the rapidly changing kinds of space we feel we should be creating in schools today.

The general character of the building should be dramatically different from the ordinary high school environment. High ceilings in many areas offer an opportunity to develop changes of level into "interior landscape." The heavy circular columns might be built into brightly colored information kiosks. Care should be taken to insure that the Gauge facility has its own visual image apart from Olney's so that students do not regard it as simply overflow space. It should provide a new educational style and be thought of as something special -- something exciting -- and most of all, a place where learning is fun.

physical values

On the opposite page is an analysis developed in conjunction with engineers on the staff of the School District of Philadelphia. It establishes a numerical framework within which a building's physical potential for renovation may be approximately determined.

These are representative figures that will vary slightly from building to building but are averaged from long experience with school construction and verified by current work on a new Philadelphia high school.

Thus, if a partitioning system represents roughly nine percent of a new school's total budget and ten percent of the partitioning in the Gauge Building is reusable, then a value factor of .9% (9% x 10% = .9%) is derived. When totalled with the remaining value factors, an overall factor of 55.0% emerges. This overall figure offers a useful yardstick in approximating the value of the existing facility (exclusive of land) and clearly indicates what work will be required to bring the building up to satisfactory educational standards.

It is seen that the Gauge Building offers an attractive opportunity. It is structurally sound. General deterioration has been kept to a minimum as a result of a mandatory government maintenance program.

Mechanically, the building will require additional plumbing and electrical fixtures, but the existing power plant and waste disposal equipment are capable of handling the increased load.

In its interior architectural features, the building is most seriously deficient. Finished floor and wall surfaces will have to be added or replaced throughout the building. New glazing and frames will be required in many window areas. Some system of acoustical treatment will be necessary over wide areas, and a good deal of special school equipment and furnishings will need to be provided.

A modest amount of outside work will be necessary to provide a protected off-street bus stop and a more appropriate main entry. Additional landscaping in the form of planting, playcourts, and parking for visitors and staff would be at the Owner's discretion.

cost analysis data	Average Percentage Complete Bldg's Total Cost	Percentage Acceptable in this Building	Actual Value Factor
Exterior Walls	10	70	7.0
Roofing	3	100	3.0
Flooring	4	0	0.0
Ceilings	3	20	.6
Partitioning	9	10	.9
Wall Finishes	2	0	0.0
Fixed Equipment	5	0	0.0
Misc. Items	4	0	0.0
Total	40		11.5
Excavation & Substructure	5	100	5.0
Vertical Frame	2	100	2.0
Horizontal Frame	18	90	16.2
Total	25		23.2
Heating, Ventilation & Air Conditioning	20	50	10.0
Plumbing	5	75	3.8
Electrical	10	65	6.5
Total	35		20.3
TOTAL	100 %	--	55.0 %

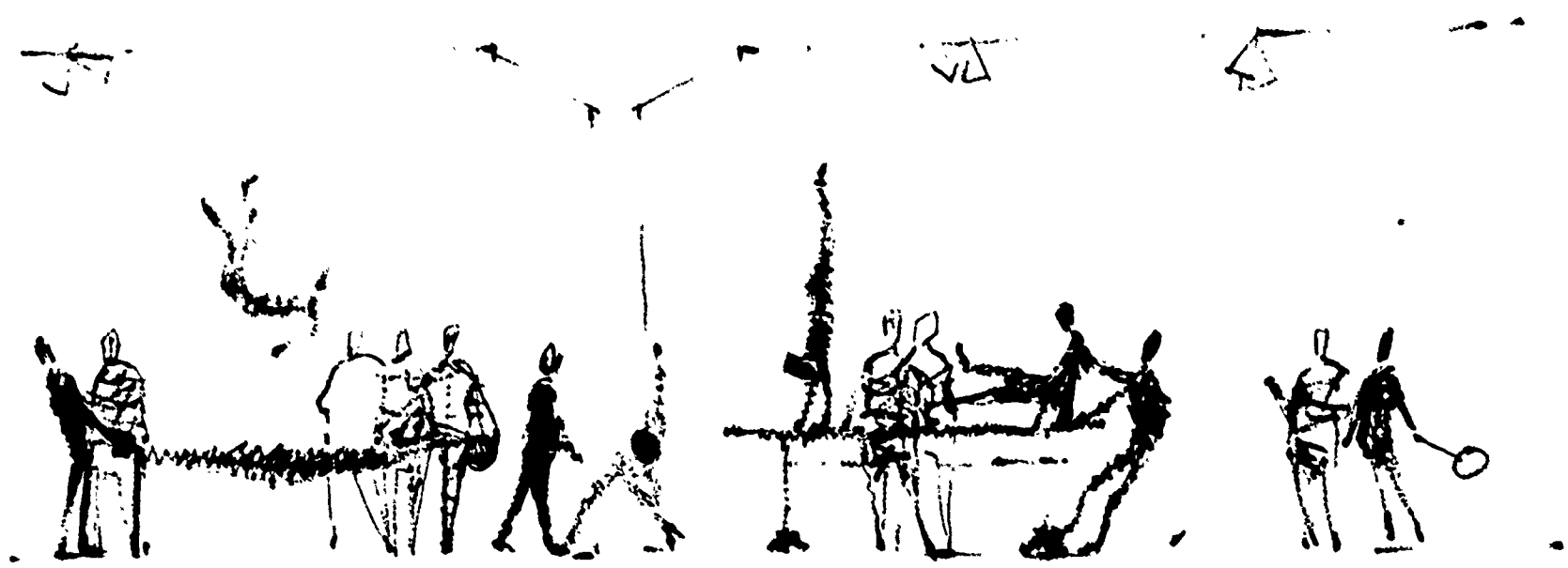
The overall figure of 55 percent indicates that the Philadelphia School District is presented with something more than half a physical facility. This figure should not be discouraging, however, since the value of the accompanying land drives the overall value up substantially. However, it should be noted that the additional 45 percent required to bring the building up to standard must be slightly increased because this is a renovation. Such work normally involves additional difficulties and safeguards on the part of the contractor, and his prices are adjusted accordingly.

5 inherent opportunities

By utilizing the Gauge Building, the School District of Philadelphia can anticipate important savings in time and cost. In addition to an existing structure suitable for conversion, the School District is the recipient of an excellent parcel of land in a stable residential neighborhood and thus eliminates the vexing and time-consuming process of site acquisition. There are concomitant savings in design and construction time as well although these must be weighed against the deficiencies indicated in Section 4.

A fine opportunity is also presented in the area of community improvement. By infusing new life in an old building, the community is immediately enriched. By replacing a factory function with an educational use, and offering a wide spectrum of after-school programs directed at citizens of all ages, the Gauge Building can become a focus of neighborhood interest and an important contributor to community life.

Finally, a strong educational idea can come to life--a Center for Elective Study--that will nurture, coax, and perhaps even bring to fruition those seeds of human potential common to all of us, but unique in each.



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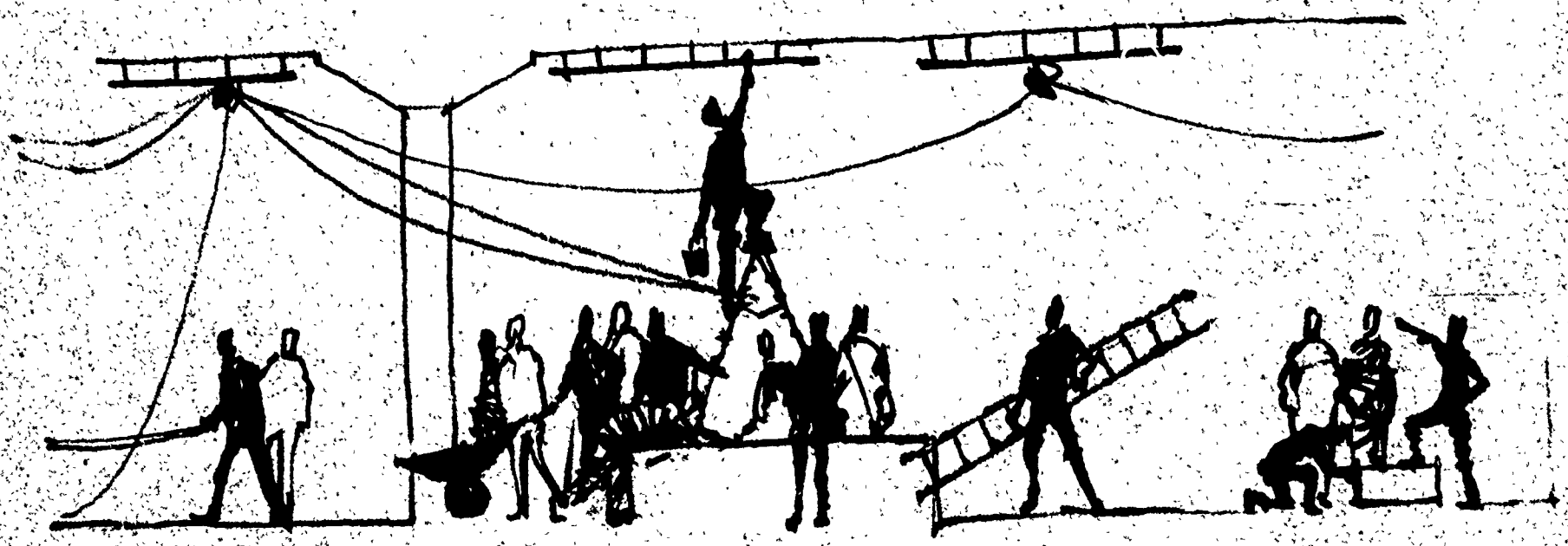

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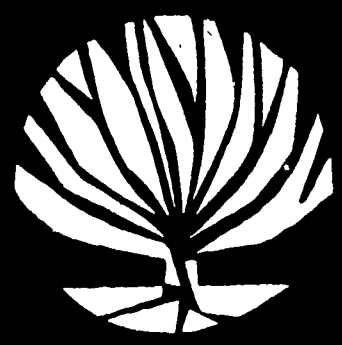

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