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STUDY

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THE DESIGN OF BIOLOGY LABORATORIES FOR ASIAN SECOND LEVEL SCHOOLS



ASIAN REGIONAL INSTITUTE FOR
SCHOOL BUILDING RESEARCH

Sponsored by Unesco

COLOMBO

1968

THE DESIGN OF BIOLOGY LABORATORIES
FOR
ASIAN SECOND LEVEL SCHOOLS

- Page 7 - Reference at foot of page "teachings" should read "teaching"
- 9 - b) last line "microscope" should read "microscope"
- 20 - Line 10 "store" should read "stove"
- 21 - d) line 2 "for" should read "or"
- 21 - Line 5 from bottom "lenghts" should read "lengths"
- 24 - Line 5 "gauge" should read "gauze"

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by
HBRC

S. S. SHARMA

Educational Consultant in Biology, ARISBR

المركز القومي لبحوث الإسكان والبناء
&
Housing & Building National Research Center

D. J. VICKERY

Architect and Unesco Head of Project, ARISBR

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والتدريب
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Great changes are presently taking place in the teaching of biology to secondary school children. These changes are to be seen not only in new curriculum content, but also in teaching methods and techniques which now tend to emphasise problem-centred learning. This paper has been prepared in the belief that buildings and furniture contribute significantly to biology teaching and learning and suggests changes in laboratory design not only to accommodate the introduction of the new content and method, but also to provide for continuing cycles of curriculum revision as they take place. Biology teaching now emphasises guided experiments in which children endeavour to find out for themselves and in their own way, the principles or laws relating to the particular biological phenomena they are studying. Demonstration thus follows rather than precedes experimental work and much formal lecturing is replaced by ad hoc group discussion. Most science lessons now need to be held in the laboratory for, in any one period the activity may change from student experiment, to discussion, to teacher demonstration, back to experiment and finally to recapitulation. In some countries, however, with a shortage of trained teachers and of biology teaching equipment this picture has not entirely been realised and thus where these shortages continue, there will often be a heavy area of demonstration by the teacher and less experimental work by the children.

None the less changes in content and method, whether they have actually taken place or are likely to be implemented in the near future, must be reflected in the new laboratories and furniture that are to be provided for biology teaching. It is important, for example, that the new laboratories be designed not only to house laboratory benches, but also to provide space for discussions; the initiatives that are encouraged in the student by new teaching methods demand moveable rather than fixed furniture; facilities are required for group project work and there is always the need for room for display of visual aids.

This publication endeavours to provide information on the functions, furnishing and design of spaces for the new biology teaching. It has been framed in a regional context with the biology syllabuses of the Asian Region in mind. The study has been approached in four stages. First the educational situation, as it affects biology teaching in the Region, has been studied, secondly the common sizes of teaching groups and ranges of second level children in the countries of the Region have been considered, thirdly the changes in teaching method that are taking place in the Region have been identified and finally for comparison, standards of accommodation, where they exist, have been examined.

The element which has the greatest bearing on laboratory design is the biology table. The table illustrated in the text has been developed in the Institute and is being studied in use in two countries in Asia. The drawings of laboratory layout shown at the end of this paper were originally produced as models before reduction to two dimensional form.



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