THE SCHOOL AUDITORIUM AS A THEATER

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FOREWORD

During recent years there has been a rapidly growing demand on the part of the public for the use of the school building as a community center for all kinds of cultural and educational activities. It is recognized that the responsibility of the public school does not end with the education of children through high school but must be extended so as to make available educational and recreational opportunities for both youth and adults. This means that the school building should be planned so as to provide the facilities needed for both school and after-school activities.

From the standpoint of community use, the school auditorium is one of the most important units in the building. There is a demand for its use as a theater, for concerts, for forums, for motion pictures, for radio programs. Such uses should be encouraged. Unfortunately, however, the design and construction of many school auditoriums erected 20 or 30 years ago tend to discourage community use because they are not adapted to the social needs of the modern community. The acoustics are bad; or the stage too shallow for plays or concerts; or there are no dressing rooms or storage space; or the seating arrangement is such as to make the seats in one-third of the house undesirable; or there is no forestage for forum speakers. All of these matters are technical details which, nevertheless, spell success or failure in the use of the auditorium for community activities. Furthermore, the auditorium is the most expensive unit in the school building, and can be justified only if it is carefully planned for the kinds of activities which are to be carried on in it.

The present bulletin deals with the evolution of the school auditorium, and presents recommendations for the planning of the auditorium, with particular reference to the stage, so that the auditorium can be used as a theater, concert hall, for forums, for motion pictures, and for radio programs. The Office of Education has been fortunate in securing the cooperation of Lee Simonson, scenic designer and theater consultant, in the preparation of this bulletin. Mr. Simonson's wide experience and technical knowledge of stage design will make his suggestions of practical value both to educators and architects.

It is hoped that this publication will stimulate interest in more adequate planning of the school auditorium so as to facilitate the school's serving as a community center.

BESS GOODYKOONTZ,
Assistant Commissioner of Education.

THE SCHOOL AUDITORIUM AS A THEATER

Part I: THE EVOLUTION OF THE AUDITORIUM

By

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Senior Specialist in School Building Problems

The auditorium is one of the most important units in the school building and yet it is usually the least well planned. The reason for this situation lies in the fact that there is considerable confusion as to the purposes and uses of the auditorium, and this confusion as to function is naturally reflected in its plans.

This bulletin aims (1) to help clear up the confusion by showing why it exists, (2) to describe some of the tendencies toward a more organized use of the auditorium during the school day and for adults during the evening, (3) to show how the construction of the auditorium may help or seriously hinder its effective use, and (4) to submit suggestions for more efficient planning of auditoriums for school and community use. Part I deals with the first three points; part II, which has been written by Lee Simonson, scenic designer, theater consultant, and member of the Board of Directors of the Theatre Guild, offers a wealth of concrete suggestions for the more effective planning of the school auditorium.

Because the effective planning of any unit in a school building is dependent upon the way it is to be used, the first half of part I is devoted to a description of the changes in functional use of the auditorium, and the reasons for these changes; while the second half shows to what extent the planning of the auditorium has kept pace with the changes in functional use.

EFFECTS OF SOCIAL AND ECONOMIC CHANGES ON THE AUDITORIUM

In order to understand the evolution of the auditorium, it is important to remember, what is too often forgotten, that the development of new activities in the school grows out of changes in the social environment which make new demands upon the school. It is necessary to understand these changes in order to understand the development of new school activities. Children are educated as much by activities outside of school as by those in school. The school should supplement and round out the education which the life of the community provides. Therefore, the kind and variety of activities which the school offers depends upon the extent to which the life outside of school provides or fails to provide activities which develop person-

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alities that are able to cope with the environment in which they find themselves. For example, in the pioneer days in this country, the activities outside of school had many elements of definite educational value for children in work which developed resourcefulness and initiative, and in play which developed good physical health. But with the growth of our modern civilization, the social environment has failed increasingly to provide, outside of school, activities in work and play that are essential both for the healthful growth of children and for equipping them to take their places in the community as workers and citizens. Consequently, the tendency has been for the school to provide these activities.

For example, manual training was introduced into the schools because, with the development of large-scale industries, the environment outside of school offered little opportunity for children to handle tools or to develop manual dexterity and an understanding of mechanical principles which it is important for every child to understand whether or not he is to be a mechanic. Nature study and science became important parts of the school curriculum as a result of the shift of population to cities, which removed more and more children from the direct contact with nature that life on the farm provided. At the same time the mechanization of farm work demanded a more systematic and theoretical knowledge of physics and mechanics than the schools had provided. In recent years music and art have been stressed in the school curriculum both because opportunities for earning a living in these fields has increased greatly in the last two decades, and also because the shortening of the working day has developed an interest in leisure-time avocational activities. Hastened by the revelations during the World War of the poor physical condition of the youth of this country, play and health education have become an important part of the school curriculum. Gymnasiums are now considered essential in many elementary as well as high-school buildings, and school sites provide space for baseball, basketball, tennis, and other athletic sports. Physical education has become so important that it is now generally accepted as desirable to plan elementary schools on sites of at least 5 acres, while the sites for high schools vary from 12 to 20 acres or more.

All these demands upon the school curriculum have been reflected in the planning of school buildings. For example, it is now generally assumed that both elementary and high schools should offer opportunities not only for academic work in English, history, and arithmetic but also work in nature study, art, music, science, and manual work of various types, including cooking and sewing. In high schools and in many elementary schools special rooms are provided for these activities.

The use of the auditorium as part of the school program has been slower in developing than any other school activity because the factors in the social environment calling for its development have been of comparatively recent growth. In the early pioneer days when a school consisted of one or two rooms for teaching the three R's, a school building contained no auditorium. Graduation exercises were held in the Town Hall or church and this was also the center for the social gatherings of the whole community, as is still the case in many villages. As cities developed and a larger number of children had to be housed under one roof, it was considered necessary to have one central place where the principal could make announcements and where graduation exercises could be held. As early as 1848 two- and three-story buildings were constructed with classrooms surrounding a central hall, which was used both as a study hall and as an "assembly hall." The whole school assembled in this hall at the beginning of school for opening exercises which lasted 5 or 10 minutes. These exercises usually consisted of saluting the flag, reading of the Bible by the principal, and announcements to the pupils relative to matters affecting the school. As to the construction of the "assembly hall," it was literally a hall with a small platform at one end and a level floor on which there were either desks and seats or movable chairs. These halls were often situated on the top floor of a building with classrooms on each side so that pupils and teachers had to pass through the "assembly hall' when changing classes. Although these "assembly halls" were sometimes used by the community, they were essentially school halls which, after opening exercises in the morning, were unused for most of the regular school day, and became festive once a year for graduation exercises, or for an occasional "special performance."

Demand for Auditorium for Community Uses.

However, during the past 25 to 30 years, changes in social and economic conditions have made the auditorium a more important factor in the life of the community. The shorter working day with consequent increase of leisure time for the masses of the people has greatly increased the demands by adults for places in which to utilize this leisure time. Before the advent of the shorter workday, one of the arguments used against it was that people would not know what to do with their leisure and would spend it in undesirable ways. The increased demand during the past quarter century that the school become a community center for adults as well as children and that the auditorium and other parts of the school building be available for use for community purposes is an eloquent answer to that fear.

Not only has there been a strong demand for auditoriums to house leisure-time activities of the community but, with the increasing com-

plexity of our social and economic problems and the consequent interest in the discussion of these problems, there has been pressure upon the schools to open the auditoriums for forums. The first noteworthy example on a large scale of the response of the public schools to this demand was the development of forums in the public schools in Des Moines, Iowa, in 1933. The experiment in Des Moines established both the interest of the public in forums and also the practicability of having the schools provide forum centers for public discussion. The extension of these forums through grants by the Federal Government to 22 cities in 1938 is another proof of the growing demand that public-school buildings shall be used by the people for free discussion of current events.[1]

The gradual acceptance of the auditorium as an essential part of the school building is shown by the fact that in a study recently made by the Office of Education in regard to school buildings erected with P. W. A. aid, it was found that in 62 percent of the cities of 10,000 population and over, where 371 new buildings had been erected, 188 school buildings, or 50.7 percent, contained auditoriums, and 36 buildings, or 9.7 percent, contained auditorium-gymnasiums, making a total of 224 buildings, or 60.4 percent of all the new school buildings erected with P. W. A. aid in cities of 10,000 population and over, which contained auditoriums or auditorium-gymnasiums. Furthermore, 48.2 percent of these auditoriums and auditorium-gymnasiums were in elementary schools.[2]

Use of the Auditorium for School Activities.

It is an interesting fact that the auditorium was accepted as an essential part of the school building for both elementary and high schools before the use of it was accepted as an essential part of the school program.

There are various reasons for this situation. In the first place, the activities taking place in the auditorium represent a more radical departure from the traditional school program than any other activity in the school. After all, manual training, science, art, and music have been accepted now for many years as regular subjects in the school curriculum. Furthermore, the teaching of these subjects involves the familiar formula of one teacher teaching one class in a room the size of a classroom or somewhat larger. On the other hand, it is obvious from the very construction of an auditorium that it is not a classroom or a study hall. A good modern auditorium has a stage, and a sloping

[1] Forums for Young People, United States Department of the Interior, Office of Education, Bulletin 1937, No. 25, and Choosing Our Way, A Study of America's Forums, Bulletin 1937, Misc. No. 1.

[2] The School Building Situation and Needs, United States Department of the Interior, Office of Education, Bulletin 1937, No. 25, pp. 24–25.

floor with fixed opera seats; and it is large enough to accommodate large groups of people rather than a single class. It is clear that auditoriums are adapted for the production of plays, concerts, forum discussions, and motion pictures for groups of children as well as groups of adults. But dramatics, concerts, and motion pictures, carried on in the auditorium as a regular part of the school work rather than as an occasional activity represent a distinct departure from the traditional conception of the function of the school. Such activities stir the emotions as well as the mind. They smack of entertainment. Because of our Puritan traditions, there has doubtless been, in the past, an unconscious resistance to the idea that plays, motion pictures, etc., are legitimate rather than incidental activities of the school.

This has been particularly true of dramatics. Yet the drama is one of the most ancient and beautiful of the arts, and dramatics is one of the most natural outlets for the creative spirit of children. Millions of dollars are spent every year for the production and enjoyment of plays. Thousands of people in the United States go to see motion pictures more or less regularly. Plays and motion pictures have a tremendous effect upon the emotions and attitudes of people. The level of these pictures, the kind of plays that are produced, depends ultimately upon the tastes and attitudes of the people themselves. And these tastes and attitudes will be largely conditioned by the tastes and attitudes developed in childhood. Because drama is one of the most creative of the arts, one that is most native to children and most likely to condition their tastes and interests later in life, dramatics in school is entitled to more serious consideration than has been given to it in the past. The production of a play, from its inception to the final production, demands not only imaginative interpretation but also the discipline that every great art demands. It requires gruelling discipline in the preparation of individual parts and also in acting a scene or an act over and over again until it is as nearly perfect as possible. It also requires years of training of the body and of the voice so that each movement of the body and each inflection of the voice may express the desired emotion. If discipline is an essential byproduct of education, then the discipline required in the production of a play should entitle the drama to front rank in school subjects. Plays which are given in school are too often given merely as the culmination of "correlations" in various school subjects with the emphasis on the correlation rather than on the production. Such plays and such correlations are desirable, but it is also desirable to recognize that training in the art of interpretative expression is of great value to children whether or not they ever act on a professional stage. Such training is an aid both to the actor and to anyone who is going to speak in public or who is concerned with presenting his point

of view to any group. Many a speaker loses his audience and his cause because he does not know how to place his voice, or because his enunciation is poor, or because he runs his words together instead of giving them the time and emphasis which he expects his audience to give them.

Another reason why the use of the auditorium as an integral part of the school work has been slow in developing is that the social and economic conditions which require development of auditorium activities are of comparatively recent growth. It has already been pointed out that the leisure time resulting from the shorter workday and the lack of public meeting places in the neighborhoods of the crowded city made it important to provide both places and opportunities for such activities for adults. It was not so soon recognized that the problem of the use of leisure time will never be solved until people form habits in childhood of interesting and creative use of leisure. Since the business of the school is to prepare children to cope with the life outside of school in which they may find themselves, and since shortening of the working day provides more leisure time than formerly, it becomes the business of the school to provide opportunities for developing in children interests and habits in leisure-time activities which will be a source of permanent interest to them as adults.

It is significant that the more intensive use of the auditorium as a regular part of the school program in both elementary and high schools arose in large industrial centers where statistics on juvenile delinquency and crime showed what our modern industrial cities were doing to children in forming habits of undesirable use of leisure. It was in industrial cities, such as Gary, Ind., Detroit, Mich., and Birmingham, Ala., that systematic work on how to use the auditorium to the greatest advantage was first begun.

SOME CURRENT METHODS OF USING THE AUDITORIUM

Whatever may have been the situation in the past, there is no question but that at the present time it is generally accepted that training for leisure-time activities is one of the responsibilities of the school and that, consequently, dramatics, motion pictures, radio, and forum discussion are legitimate activities in the school program. Also, there is a growing recognition of the fact that dramatics, radio, lantern slides, and motion pictures can be presented most effectively in the auditorium, although the first three activities are still carried on in many places in individual classrooms. A number of different methods of using the auditorium for these activities are now in practice. Since the ways in which the auditorium is used by the school as well as by the community should condition the design and construction of this

unit of the school building, it is important to give a brief description of the different methods of using the auditorium.

There are probably many schools where the use of the auditorium is still largely limited to opening exercises, school announcements, graduation exercises, and special occasions, but it is the new and growing tendencies in its use which should be studied in order that auditoriums constructed now, in buildings likely to last 30 years or more, may not hamper the fullest possible development of auditorium activities for both school and community purposes.

In general the methods of using the auditorium as part of the school program in either elementary or high schools may be divided into the following two types:

Use of the Auditorium by Regular Teachers for Special Programs.

In many schools the regular classroom teacher takes her class to the auditorium to present a play or a lantern-slide lecture which has been prepared in the classroom as the culmination of 2 or 3 weeks' work on a special phase of the class work. If there are special teachers of art, or music, or domestic arts who are in the school certain days of the week, they assist the class in preparing those parts of the performance which touch upon these subjects, for example, painting of posters and programs, making costumes, etc. If there is to be a celebration of some special event which involves work for the whole school, then all classes and teachers share in the preparation and the whole school goes to the auditorium on one day to see the performance. At certain times during the week the whole school, or certain classes, may assemble in the auditorium for radio concerts or the auditorium may be used by a band or orchestra for practice work; or by a small group for the preparation of a play; or by the music teacher for practice work in choral singing.

Under this plan there is no auditorium teacher who gives all her time to auditorium work. Also, the auditorium is not in use continuously throughout the school day, and when it is in use the classroom of the class using the auditorium is vacant. From the standpoint of utilization of space this use of the auditorium does not increase the capacity of the school since a classroom is vacant when the auditorium is in use. Therefore, at some time during the day either the auditorium or one or more classrooms are not in use. However, the important point is that the schools which use the auditorium in this way recognize the fact that it is both more convenient and effective to present plays, radio programs, and lantern-slide lectures in an auditorium on an auditorium stage than, as was formerly done, in classrooms two-thirds of which are filled with school seats and desks.

Use of the Auditorium Each Period of the Day by Groups of Two Classes or More Under the Direction of an Auditorium Director.

There is another method of using the auditorium which has been developed in platoon or work-study-play schools and which has many points of interest to those concerned with developing the auditorium, whether or not they have schools organized on the work-study-play plan. In these schools 2, 4, 6, or 8 classes, depending upon the size of the school, go to the auditorium regularly each day just as individual classes go to classrooms. For example, grades one and two may be in the auditorium 1 period followed by grades three and four the next period; or if the school is sufficiently large, there may be two sections of grade four in the auditorium at one time, followed by two sections of grade five, etc. Under this plan, the auditorium is in use regularly every period of the day and classes are scheduled to it as they are in the case of any other regular school activity. Each child gets 1 period a day in the auditorium. These periods vary from 30 to 45 or 50 minutes. If there are 10 periods in the day and 20 classes in the school, there will be 2 classes in the auditorium each period.

In the schools where the auditorium is utilized as has been described, it is reported by superintendents of schools that the capacity of the building is increased, the curriculum is enriched, and the teaching personnel need not be greater in proportion to pupil enrollment than when the auditorium is merely a place for occasional assemblies. Schedule-making for greater utilization of the auditorium, without adding to the number of teachers who serve a given school population, is feasible.[3] At least one teacher for full-time work is scheduled to the auditorium. She is called an auditorium director, rather than a teacher, in order to emphasize the fact that the auditorium is not a place in which teaching is carried on as is done in a classroom. The task of the auditorium director is to organize the work of the auditorium. This is done somewhat as follows: The auditorium director meets with all the teachers in the school at the beginning of each school term and asks each one of them to submit suggestions for auditorium programs growing out of the work in their classes. For example, the nature-study teacher may suggest that in the fall the work in nature study may culminate in a play written by the children on the harvesting season; or work in the history class may result in a pageant on *Children of Other Lands;* or, at another time, the physical education and play director may be ready with a dance on which the children had been working. Each teacher and her class estimate the time when each piece of work will be completed and ready to be presented in the

[3] Power, Leonard. The problem of auditorium utilization. American School Board Journal, 92: 43 May 1932; and Utilising the school auditorium. School Executive, 55: 270, June 1936.

auditorium and the auditorium director is notified some weeks ahead of the performances. Then comes the preparation of the program by the children who are to take part in it.

Preparation of the auditorium program.—Broadly speaking, in these schools which use the auditorium continuously during the day, two different methods are used in preparing the program. In some schools the children in an auditorium group who are to present a program are trained in the auditorium by the auditorium director, with the aid of the group in the auditorium. The program is later presented to this same group. It takes a great deal of skill to use this method because there are obvious difficulties in training 6 or 8 children while 70 or more other children are present. It can be done and is done successfully, but it has difficulties.

In other schools in which classes are scheduled regularly to the auditorium, the preparation of the auditorium program for each group is carried on as follows: In addition to the auditorium director, there is an auditorium training teacher who does her work in a small room about half to two-thirds the size of a classroom, called an auditorium training room. It might well be called a rehearsal room. When a teacher and a class have decided upon a play which is to be presented in the auditorium, the children who are to be in the cast go to this auditorium training teacher each day for 2 weeks before the presentation of the play instead of going to the auditorium with their auditorium group. The auditorium training teacher is one who has specialized in dramatics, in voice training and speech. Through the work with the auditorium training teacher, each child gets training both in enunciation and in dramatic expression. He learns that it is one thing to know the subject which he has been studying in the classroom and an entirely different thing to be able to express it effectively so as to be convincing to an audience.

Presentation of auditorium program.—The procedure in the auditorium each day varies in different schools, but in general it is as follows: Each auditorium group elects a chairman and secretary who preside over each auditorium meeting of their group. The children are in charge. The auditorium director is never on the stage. The meeting opens with the reading of the minutes by the secretary and the announcement of the day's program by the chairman together with any school announcements that need to be made. This is followed usually by 10 or 15 minutes of chorus singing or listening to a radio program. Then comes the program of the day which lasts 20 or 30 minutes depending upon whether the auditorium period is 30 or 45 minutes long. At the conclusion of the program the cast appears before the curtain and the audience offers criticisms and comments on the production.

The programs given in the auditorium to which classes are scheduled each period of the day do not differ much in subject matter from those given in schools which use the auditorium at irregular intervals rather than as a regular part of every day's school program. There are plays, debates, lectures, motion pictures, lantern-slide talks, and music. The essential difference is that a definite time and place are set aside for them each day and one or more teachers give all their time to this work. And because much more time is given to this work, there is a greater variety of programs. Superintendents, principals, and auditorium directors, who have had experience with the daily auditorium work over a period of years say that because these programs are carried on regularly for all grades every day through each school year, they provide a rich background of appreciation of some of the world's great plays and finest music, and also develop in the children resourcefulness and inventiveness in putting on their own programs. In addition, they say that the frequency of the programs develops poise and unself-consciousness in speaking to large groups.

Organized auditorium work as a daily period in the school program was first started in the public schools of Gary, Ind., over 30 years ago. It is now carried on in platoon or work-study-play schools in more than 300 cities and in a number of rural schools. Many articles and reports have been written on the subject. For a number of years there has been a National Auditorium Committee consisting of auditorium directors interested in pooling their experiences and ideas. This group held annual conferences and published reports of these conferences in *The Platoon School* under the title "The Auditorium Round Table," which contained detailed questions and answers on the practical organization of auditorium work.[4]

The underlying philosophy of the work in the auditorium is important because that philosophy will condition the kinds of programs to be carried on and, therefore, condition the design and construction of the auditorium. The following quotation from Mildred Harter, chairman of the National Auditorium Committee and director of auditoriums for the Gary, Ind., public schools, presents one of the attitudes towards the auditorium which is steadily growing among the schools using the auditorium continuously each day. Miss Harter was one of the pioneers in developing auditorium work, and it is an interesting fact that this quotation written 6 years ago is now representative of a growing tendency in the use of the auditorium.

> This auditorium period is, in adult language, nothing more nor less than a theater period serving the child as the theater has always served the adult—

[4] The Auditorium Round Table. The Platoon School: April 1928, pp. 81–85; June 1928, pp. 76–80; October 1928, pp. 131–135; Mar.-Apr.-May 1929, pp. 28–33; June-July-Aug. 1929, pp. 67–70; Sept.-Oct.-Nov. 1929, pp. 127–130; Dec.-Jan.-Feb. 1929–30, pp. 180–184.

"A rest period in which he learns something." * * * Just why a new strange term (auditorium) was substituted for the older simpler term theater, I do not know. * * * That the school coined this new, strange name for the simpler, age-old term is regrettable, for administrators and teachers who clearly understood the function of the theater in the adult world have been quite uncertain concerning the function of the "auditorium" in the child's world. * * * There is nothing vague, nothing strange in the function of the theater in the adult world. Since the days of the Greeks and the Romans, nations and peoples have recognized the power of the theater in the lives of the people. For many years, individual schools, individual teachers have sought, unconsciously and consciously, in a more or less haphazard fashion, to meet this need in the life of the child. So far as I know, the only systematic well-organized plan for consciously meeting this need, is this auditorium period.

The auditorium room, unhampered by classroom paraphernalia, creates an atmosphere not unlike that of the adult theater. It is indeed a real theater room with a real stage with curtains and screens, floodlights and spots, where one meets the real audience, not merely the fellows of one's own class, but members of two, three, or four classes—interesting, stimulating people, a bit younger and a bit older than one's most constant companions. * * *

In the child's life, this period is not extracurricular, not irregular, not a hit-or-miss experience, but is made an integral part of his program of living. * * * The situation is distinctly a social one. Here one works for one's fellows—not for himself, not for a teacher, not for a grade. Whatever one does he does because he believes he has something he can contribute to the group. He talks, sings, acts, paints, devises costumes and sets, adjusts curtains and controls lights because he believes the audience wants his contributions. * * *

The activities of the period are those most common to the adult theater, music and speech. * * * Approximately one-third the period is given to listening to music and to singing together. Adults who know what Walter Damrosch's weekly music appreciation periods have done for all children who have been exposed to them, can know how vital these daily periods, directed by well-trained music teachers, can be in the lives of auditorium children. * * * When the music leader withdraws, one is aware of much speech activity. Members take the floor to share their interest with their fellows. And these interests are the varied, colorful interests of childhood. * * * They touch all subjects and talk freely, spontaneously.

The child chairman must be resourceful, self-confident, well-poised. He introduces the day's program. * * * After the introduction, comes the "developed" program. After the program comes the open forum, the frank expression of reactions. * * *

It is evident that in one vital principle the two theaters, the adult's and the child's, differ. The child's theater period not only feeds the emotions and stimulates the imagination, as does the adult theater, but it also provides situations for creative expression, as well as creative thinking on the part of the audience.

The programs, as I see them, fall into two classifications: In the first group are the children's own original, created programs—programs built up and created out of their experiences, their interests. They read their own poetry, they tell their own stories, they plan and give charming lecture recitals on every conceivable subject in which they are interested. These programs, planned by children, guided only by the skillful teacher-member of the class, given by children to children rarely fail to interest the young who see them. * * *

> But the auditorium teacher knows that there is no teaching equal to the feeling which is engendered when we are touched by great art. * * * So we have a second group of programs, those based directly on literature. In this second group children re-create the folk tales of the ages, the rhymes, the poetry, the ballads, the fables, the sagas, the epics, the drama: Miss Muffet, King Cole, Three Billy Goats Gruff, The Wind and the Sun, How Arthur Drew the Sword, Alladin, Alice in Wonderland, Dick Whittington, King Midas, The King of the Golden River, Rip Van Winkle, Robin Hood, King Arthur, Shakespeare—the source is inexhaustible.[8]

Another authority on auditorium work, Grace Bridges, who has been supervisor of auditoriums in the Portland, Oreg., public schools since the inception of the auditorium work in the Portland schools in 1924, expresses in the following quotation the philosophy and method of conducting the work in the auditorium:

> Auditorium work is not a revolutionary movement in the public school. It is, like everything else found there, an evolutionary development of something long in existence and for which a felt need has long been recognized. Otherwise it would not be in a tax-supported institution. "Speaking day" had been established by custom in the elementary school for nearly a century before auditoriums were included in public-school buildings. The readers of the early decades of the last century made provision for varied programs on "speaking day" by including poetry, oratory, and conservative drama in their selections and as a rather general rule a part of every Friday afternoon was set aside for what could be termed "speech work," almost to the end of that century. Some form of socialization was demanded and what could not be found at the Friday speakin' could be at the singin' school or the spelling match. In fact, most of us can remember participating in one or more of these forms of socialized recitations. * * * These were usually left to chance with no definite aim on the part of the teacher or the children; there was little or no background for the work to be presented; often no guidance or supervision on the part of the teacher; the child frequently had no freedom for natural expression and as frequently had too much. * * *
>
> But the Friday speaking exercises with the teacher-directed assembly, the memorized and stilted work, the exploited, gifted, or self-confident child, the agonized self-conscious child, have gone. We have come to believe with George Herbert Palmer that "education is not a mere operation; it is a cooperation. * * *"
>
> There is fortunately no course of study for auditoriums. This department has been left free to serve the needs of the school in the broadest way possible, unhampered by printed regulations and uncurbed by traditions. The auditorium may devote its time and energy to dramatic interpretation, to creative dramatics, to lecture recitals, to visual education presentations, to poetry and music appreciation, to study of parliamentary procedures, to practice in stagecraft and construction of accessories or to combinations of any or all of them.
>
> Music is used almost always at the opening of an auditorium period, partly for the intrinsic value of the music itself and partly for the reason that the community singing quickly unifies a group made up of units operating alone in every other department of the school unless it be in the gymnasium. * * *

[8] Harter, Mildred. The Auditorium Period—Why? The Platoon School, February 1933, pp. 3-6.

Instead of the formal reproduction of adult selections, dictated by adult interests and measured by adult standards, we find within the auditorium a situation which comes very near to being a democracy. Children are in charge. Every child participates, either from the platform or as a part of the audience. This is not the passive audience of other days. It is actively critical and recognizes constructive criticism as the chief reason for its existence. It is a mutual-benefit association with certain set objectives and many unexpected products. The procedure is informal; the work is productive or interpretative rather than reproductive or imitative; it is dictated by children's interests and measured by standards they formulate.

Although it is informal, the procedure is parliamentary. Children can recognize the truth of Macauley's statement, "Men are never so likely to settle a question rightly as when they discuss it freely." They recognize as do few adults the impossibility of free discussion under other than a controlled situation, hence the use of simple standard parliamentary rules. When an auditorium session opens, child officers call it to order. The secretary's minutes are carefully considered. Everyone has a right to hear and know what has taken place. Announcements are made, questions are answered, committees are instructed. Reports on membership, hospitality, and program are heard. * * *

Variety of program offers opportunity to every child. Drama, pantomine, and living pictures offer creative stimulus. The child who falls short of original production can handle slides and films for those who offer lecture recitals connected with them and all feel equally the satisfaction of having been indispensable to the success of the whole. Shadow-picture posing makes participation possible for some whose gifts are limited while those who direct the placing and the sequence are often exercising the highest type of creative expression. The living statue feels the thrill of having made production possible. The dramatic illustrated story gives opportunity for vocal and pictorial expression—both high manifestations of growth. Children as well as adults must have avenues of escape. Expression is essential. If it is not offered within the school, it will be sought elsewhere. A curriculum designed to meet the needs of society must recognize this. The classroom offers one type of expression, the auditorium another. Recognition by the school of the various and varying needs of children must precede successful auditorium work. What cannot come through the classroom, the gymnasium, the art room, or the music room must find outlet here. A program of such variety is a challenge to every live, progressive teacher, whether she be in auditorium or not. Every teacher in the building must recognize the significance to the school of the auditorium. * * *

The auditorium is the immediate concern of the auditorium teacher. But so far as utilizing its possibilities is concerned, the elementary principal is equally interested and even more responsible. More attention must be given by him during the next decade to the wise use of the auditorium, not simply as a place for school assemblies daily, weekly, or monthly, as the case may be, but as the center of building activity generally. Into it more of the informal activities growing out of the classroom should be brought, either for perfecting or for sharing. Children who participate in classroom projects often fail to see their work in its true perspective until they see it staged in a larger arena. To stimulate and accelerate the bringing in of classroom activities is the province of the auditorium teacher only indirectly. It is the direct responsibility and opportunity of the principal.[6]

[6] Bridges, Grace. The Auditorium as a Coordinating Agency in Speech Training. The Platoon School, February 1933, pp. 9–13.

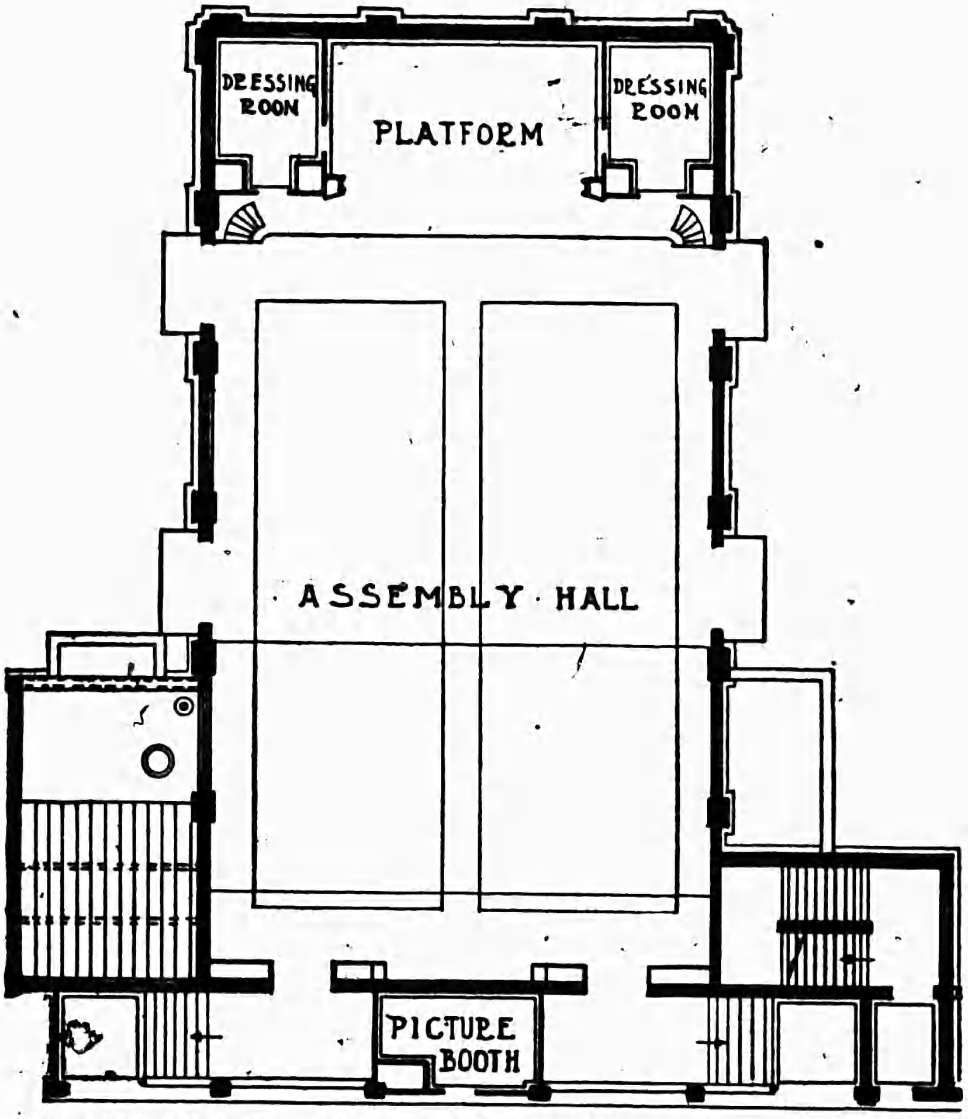
CURRENT PRACTICES IN CONSTRUCTING AUDITORIUMS—DO THEY HELP OR HAMPER AUDITORIUM WORK?

How shall the auditorium be planned? It would seem obvious that, if the auditorium is to be used for the production of plays, concerts, motion pictures, etc., it should be planned as a theater is planned, with a sloping floor and fixed opera seats and, above all, with an adequate stage.

Size of the Auditorium.

What size should the auditorium be? This is an important question both from the standpoint of effective use and from a financial standpoint. When the auditorium was merely an assembly hall, the use of which was limited in general to opening exercises for the whole school and for graduation exercises, this assembly hall was constructed so as to provide for the total capacity of the school which in those days rarely exceeded 300 or 400 pupils. But as cities developed and the school enrollment has increased to 1,200 and sometimes to 3,000 pupils or more, and as there is a growing tendency to build consolidated rural schools which sometimes have a capacity for 1,000 pupils or more, the cost of providing an auditorium for the total capacity of the school has become prohibitive. Furthermore, since the auditorium is no longer a place merely for assembling the whole school for opening exercises or for some special occasion but is becoming an important educational unit in the school building, school superintendents have naturally asked the question as to why the total capacity of the school should be provided for in the auditoriums. The only answer seems to be that "it has always been that way," or that a large auditorium is needed for the whole school or for some special community purpose two or three times a year. The question then arises as to whether the auditorium should be planned for exceptional use or on the basis of the ways in which it is most often used. Obviously, it is extremely expensive to plan any part of a building, and especially the auditorium, for exceptional use. Also, the large auditorium with a capacity of 1,200 to 1,500 seats is not desirable for the presentation of plays either during the school day in the school program or for community use in the evening. It should also be remembered that for the average occasion the neighborhood or community use of the auditorium does not require an auditorium with a larger capacity than 500 to 750.

It is true, however, that larger auditoriums should be available for unusual occasions, for mass meetings, large forums, etc. In cities this problem can be met by providing large auditoriums with a capacity of 1,500 to 2,000 for a population area comprising three or more elementary-school districts, depending upon the congestion of population.



Auditorium of School No. 6. Because the "platform" is only 13 feet deep and there is no off-stage space, the use of the auditorium is limited to lectures and motion pictures.

In rural areas where there are two or three villages within 20 miles of each other, it is also possible to have one large auditorium in a central high school and smaller auditoriums in elementary schools. In more sparsely settled rural areas, the auditorium would have to be larger than necessary for average school and community use. In such cases it is possible to convert it into a smaller auditorium for daily use by means of curtains.

Because of the fact that the large auditorium is prohibitive in cost and is not adapted for average use by the school and community for the presentation of plays, motion pictures, lectures, etc., the tendency is now to provide school auditoriums with a capacity of 33 to 50 percent of the total capacity of the school except in such situations as are

referred to above. A recent study of auditoriums in 30 elementary-school buildings showed that only 10 buildings provided seating capacity for more than 55 percent of the capacity of the school, and only 3 of these buildings provided for as much as 100 percent of the total school capacity. (See table 1.)

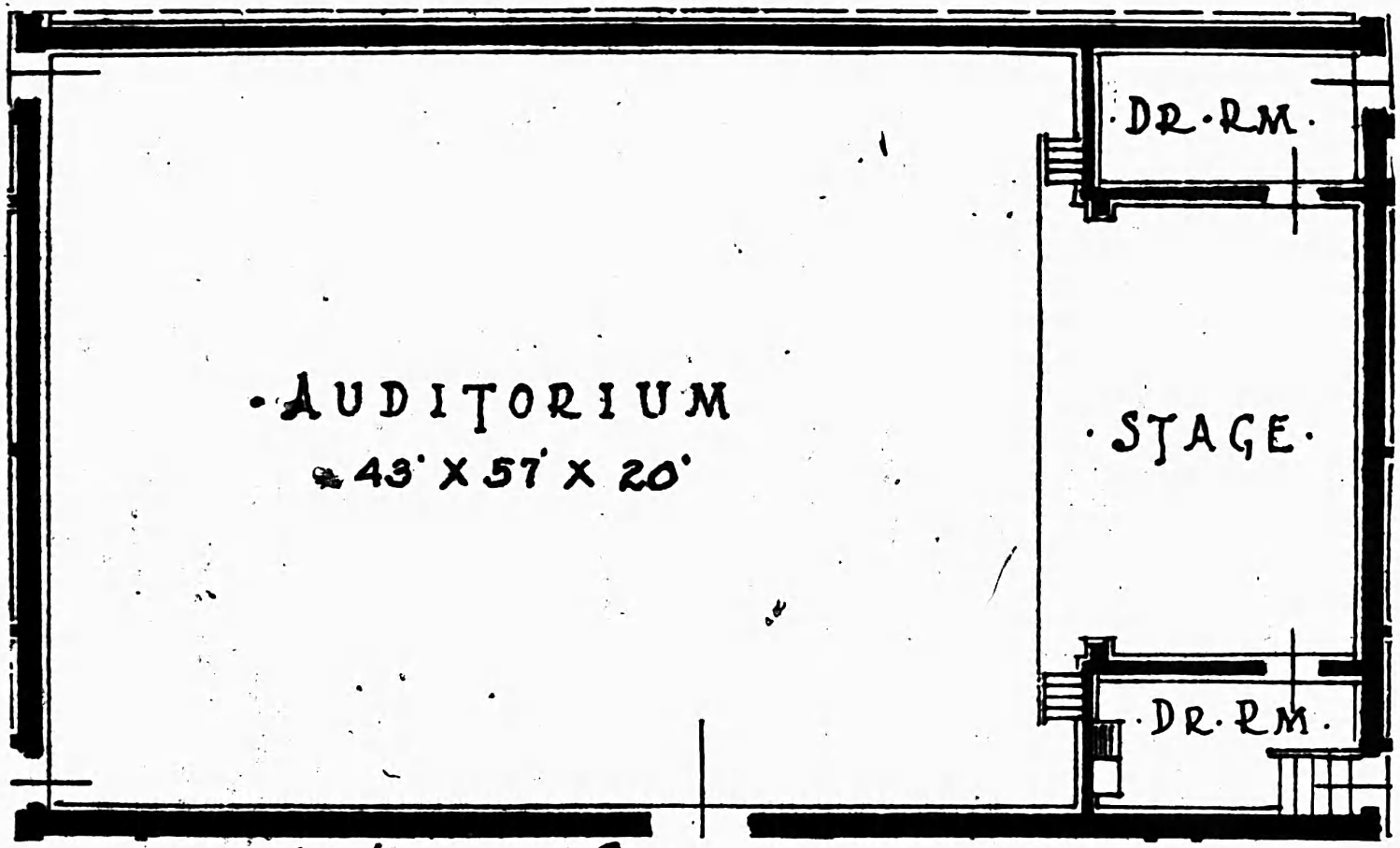
TABLE 1.—*Audience capacity of auditoriums in 30 elementary-school buildings in 21 States*

School [1] and State	Audience capacity of auditoriums	Capacity of school on basis of 40 pupils per room	Percent of capacity of school provided in auditorium
1	2	3	4
No. 1 (Illinois)	781	1,040	75.1
No. 2 (Ohio)	700	1,320	53.0
No. 3 (New York)	679	1,280	53.0
No. 4 (New Jersey)	607	1,320	46.0
No. 5 (North Carolina)	563	400	140.8
No. 6 (Pennsylvania)	560	1,200	46.7
No. 7 (New Jersey)	517	2,040	25.3
No. 8 (Kansas)	475	360	131.9
No. 9 (Oregon)	473	1,240	38.1
No. 10 (Texas)	473	1,000	47.3
No. 11 (Arkansas)	472	640	73.8
No. 12 (Connecticut)	467	760	61.4
No. 13 (Missouri)	445	480	92.7
No. 14 (New York)	442	800	55.3
No. 15 (California)	440	640	68.8
No. 16 (Missouri)	409	800	51.1
No. 17 (Washington)	400	800	50.0
No. 18 (Minnesota)	360	440	81.8
No. 19 (Arkansas)	355	560	63.4
No. 20 (Missouri)	338	680	49.7
No. 21 (Wisconsin)	336	440	76.4
No. 22 (Alabama)	300	1,440	20.8
No. 23 (Michigan)	280	1,320	21.2
No. 24 (Alabama)	280	520	53.8
No. 25 (Pennsylvania)	267	680	39.3
No. 26 (California)	228	960	23.8
No. 27 (Michigan)	222	520	42.7
No. 28 (Indiana)	193	1,160	16.6
No. 29 (Pennsylvania)	156	560	27.9
No. 30 (Iowa)	140	560	25.0

[1] For the purposes of this report, schools are identified by numbers instead of by names.

Dimensions of the Auditorium.

From the standpoint of effective use, the dimensions of the auditorium are of great importance. It would seem obvious that an auditorium should be longer than it is wide, and that the width of the auditorium with relation to the width of the proscenium arch should be such that it is possible to see any part of the stage from any seat in the house. That this is generally accepted practice is shown by the fact that of the 30 school buildings only 3 had auditoriums in which the width was greater than the length. (See Appendix, table I.)



Auditorium of School No. 16. This stage illustrates the construction of dressing rooms in the space that should have been reserved for off-stage space. The stage is only 14 feet deep.

The Stage.

It is in the planning of the stage, however, that most of the school auditoriums are woefully inadequate. This is not necessarily the fault of the architect. In fact, it is usually no one's fault. The real reason for the poor planning of the stage is that most of the stages in school buildings were designed before there was any well-thought-out plan as to how the auditorium stage was to be used, and this is doubtless still true in the case of many new school buildings. Now, however, that it is evident that the auditorium is going to be used in the future more or less regularly both by the school and by the community for the production of plays, operettas, and concerts as well as for lectures and motion pictures, it is important to pay more attention to the planning of the stage. For example, if a stage is too shallow, say 12 or 15 feet in depth, it becomes impossible to put on anything but the most meager performance because there simply is not room enough to get the actors and properties on the stage. Under these circumstances, the development of the teaching of dramatics as an art that is to be taken as seriously as the teaching of drawing or painting or music becomes practically impossible, nor can the auditorium be used by the community for the production of plays. When it is considered that the cost of an auditorium ranges from $50,000 to $150,000 or more, the extravagance of building an auditorium without a well-planned stage becomes evident.

There are no hard and fast standards for the planning of the auditorium stage, but it is clear that the stage should be so planned that it will be adequate for the different activities for which the auditorium is to be used. Therefore, because a stage planned for the production of plays is satisfactory for such other activities as forum discussions, motion pictures, lectures, etc., whereas a stage planned for any one of these other activities is not necessarily satisfactory for the production of plays, it is desirable to follow the standards of stage design which will permit the production of plays. The size and dimensions of the stage would vary according to the size of the auditorium. For example, in elementary schools the stage should be smaller than for high schools, but there are certain standards in regard to depth of stage, width of proscenium arch, and space off stage which apply to stages of all sizes.

In order to determine to what extent the auditorium stages in recently constructed buildings approximate acceptable standards of good stage design, a number of auditoriums in recently constructed elementary- and high-school buildings have been studied in order to illustrate some prevailing practices and to indicate the need for more serious consideration of the design and construction of the auditorium stage. The basis for the standards in regard to depth of stage, width of proscenium arch, and space off stage are given in detail by Mr. Simonson in part II.

Depth of stage.—It is recommended by experts in stage design that the stage should be not less than 25 feet in depth. A depth of 20 feet has already been accepted as desirable by principals and auditorium directors in schools where work in the auditorium is part of the school program, but the data submitted in part II indicate the desirability of the greater depth.

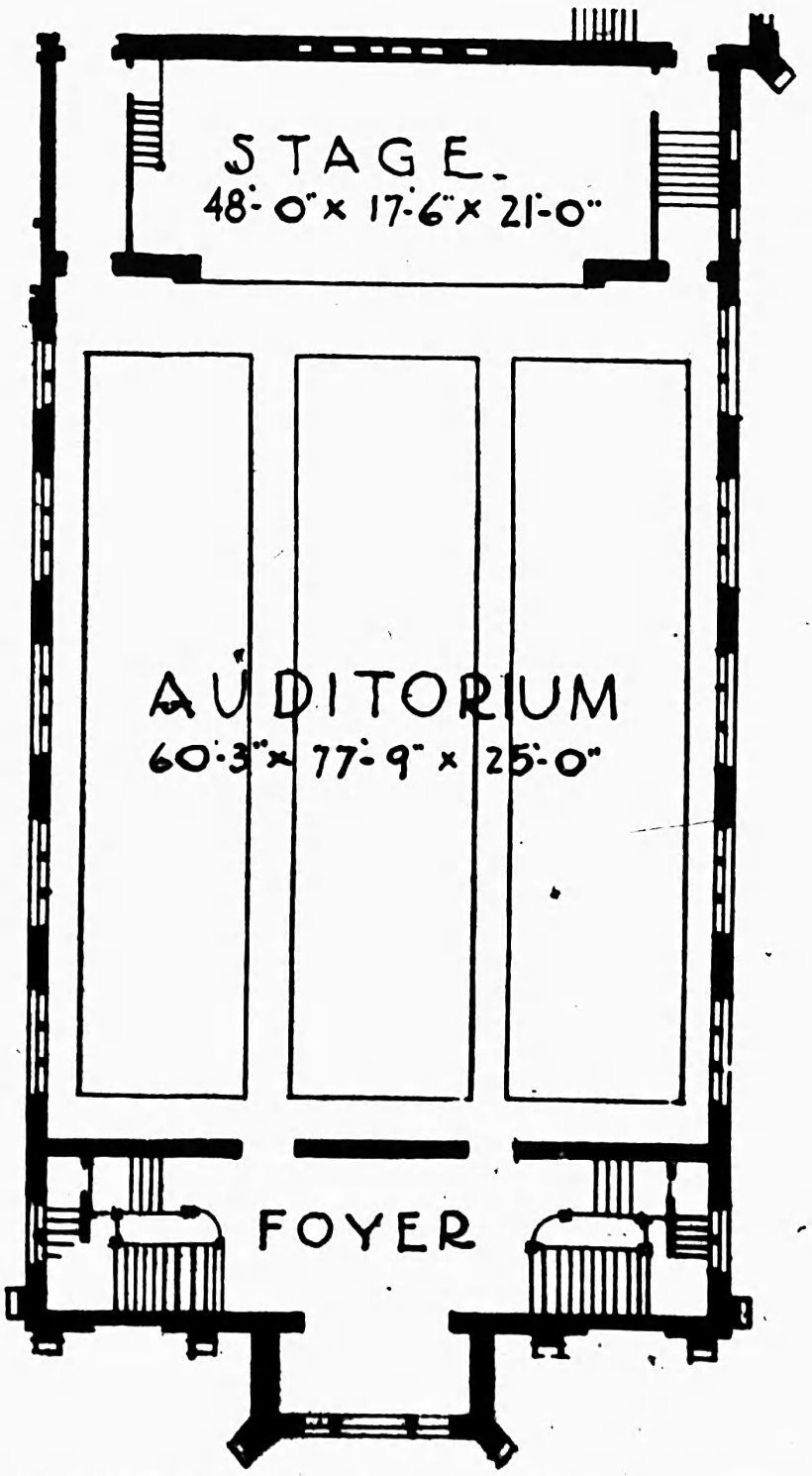
To what extent are stages being constructed on this basis? Of 30 auditoriums in elementary-school buildings recently erected in 21 States, there were only 2 buildings, or 6.7 percent, in which the stages were 25 feet or more in depth. In 9 buildings, or 30 percent, the stages were from 16 to 18 feet deep; in 17 buildings, or 56.6 percent, they were 10 to 15 feet deep; and in 2 buildings, or 6.7 percent, they were as shallow as 6 to 9 feet. (See table 2.)[7] The floor plan of the auditorium of school No. 6 is an illustration of a shallow stage (13 feet) in an auditorium of a modern school building. The fact that the stage is designated on the floor plan as a "platform" indicates why it is so shallow; that is, that it was planned literally as a platform and not for stage productions. Yet this stage is in an auditorium that has a capacity for more than 500 persons. The construction of the auditorium definitely limits its use to lectures and motion pictures, for which a booth is provided. On the other hand, in school No. 2, in which the auditorium has a capacity for 700 persons, the stage is 27 feet deep, and in school No. 3, in which the auditorium has a capacity for 679 pupils, the stage is 25 feet deep.

Width of the proscenium arch.—It is desirable that the proscenium arch should be not less than 24 feet and not more than 30 feet in width. Of the 30 auditorium stages studied, there were 13, or 43.3 percent, in which the width of the proscenium arch conformed to this standard; in 12 auditoriums, or 40 percent, the proscenium arch was less than 24 feet; and in 5, or 16.7 percent, the width was more than 30 feet. (See table 3.)[8]

TABLE 2.—*Depth of stage in auditoriums in 30 elementary-school buildings*

Depth of stage	Number of schools	Percent of schools
25 feet or more	2	6.7
16 feet to 18 feet	9	30.0
13 feet to 15 feet	13	43.3
10 feet to 12 feet	4	13.3
6 feet to 9 feet	2	6.7
Total	30	100.0

[7] Appendix, table II.
[8] Appendix, table III.



Auditorium of School No. 1. This auditorium, with a capacity for 700 persons, is evidently designed for community use, yet the shallow stage (17 feet 6 inches) and the limited off-stage space seriously limits its use for the production of plays.

TABLE 3.—*Width of proscenium arch in auditoriums in 30 elementary-school buildings*

Width of proscenium arch	Number of schools	Percent of schools
More than 30 feet	5	16.7
Less than 24 feet	12	40.0
30 feet or less but not less than 24 feet	13	43.3
Total	30	100.0

Space off stage.—One of the most frequent and most serious faults in the planning of the auditorium stage is the tendency to provide little or no off-stage space. *The width off stage should be equal to the width of the proscenium arch.* Failure to provide this off-stage space in the original plans of the auditorium stage can almost never be remedied, and lack of such space may condition permanently the usefulness of the auditorium for the many occasions for which the school and community may wish to use it. Yet in the 30 auditorium stages studied, none had space off stage that was equal to or greater than the width of the proscenium arch. Six stages, or 20 percent, had off-stage space which was something more than half the width of the proscenium arch; 10 stages, or 33.3 percent, had off-stage space that was less than one-half but more than one-fourth the width of the proscenium arch; 10 stages, or 33.3 percent, had off-stage space less than one-fourth the width of the proscenium arch; and on 4 stages, or 13.4 percent, there was no off-stage space at all. (See table 4.)[9]

TABLE 4.—*Space off stage compared with width of proscenium arch in 30 elementary-school buildings*

Space off stage compared with width of proscenium arch	Number of auditorium stages	Percent of all auditorium stages
Equal to or greater than width of proscenium arch	0	0
More than ½ the width of the proscenium arch	6	20.0
Less than ½ but more than ¼ the width of the proscenium arch	10	33.3
Less than ¼ the width of the proscenium arch	10	33.3
No off-stage space	4	13.4
Total	30	100.0

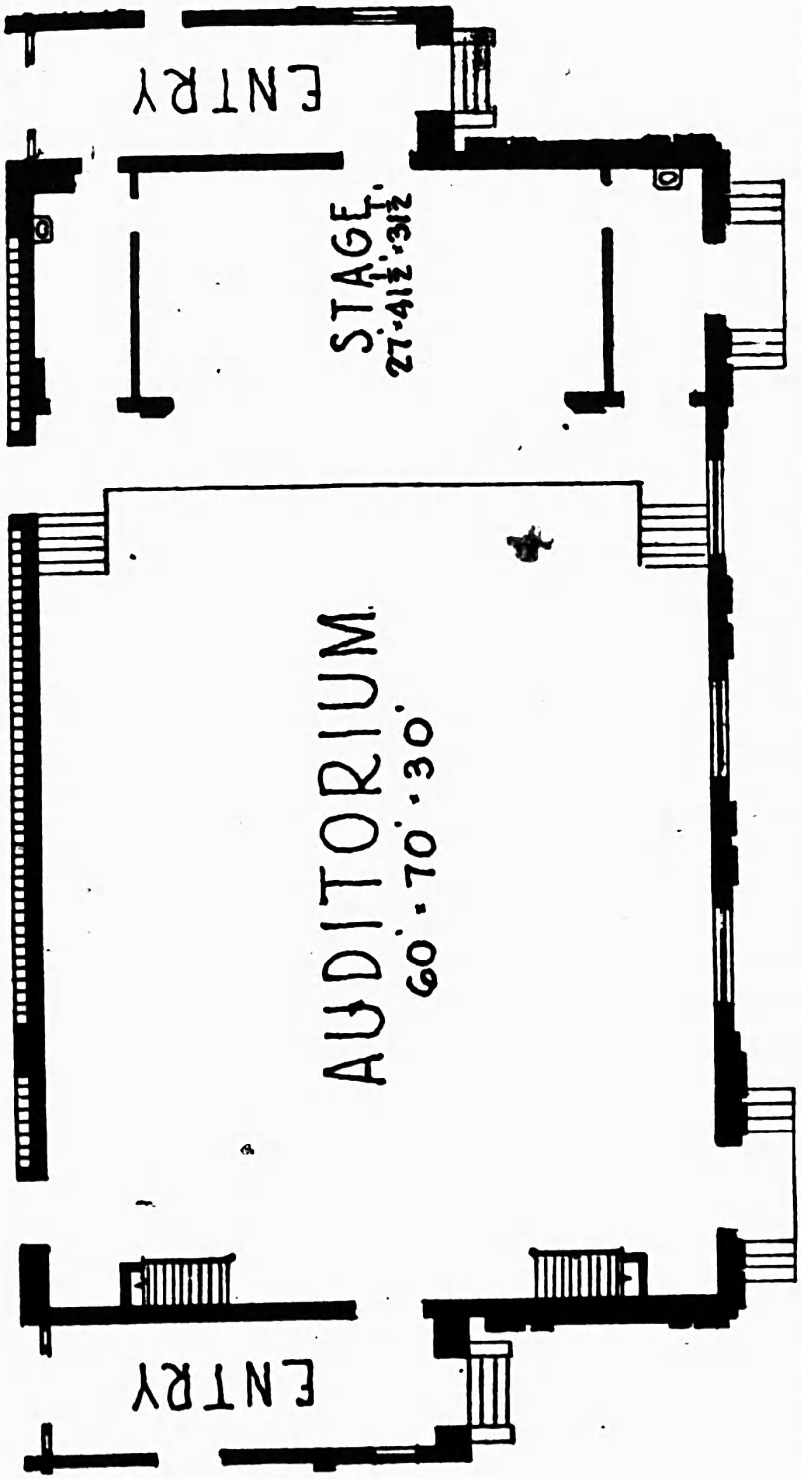
Structurally, off-stage space is often available on school auditorium stages, but is used for dressing rooms or else is cut up by stairs. Of the 30 stages, there were only 6 in which the stage on either side of the proscenium arch was not occupied by dressing rooms or stairs. The stage of school No. 16 is an example of the use of space on either side of the stage for dressing rooms. The width of the proscenium arch is 24 feet and there is practically no off-stage space. But if the space on either side of the stage had not been used for dressing rooms there would have been 19 feet of clear off-stage space available. However,

[9] Appendix, table IV.

the fact that this stage is only 14 feet in depth seriously hampers its use for the production of plays and many other activities for which the school and community will doubtless wish to use it in the future. School No. 6, already referred to, is another example of the cutting down of off-stage space by the building of dressing rooms. The width of the proscenium arch on that stage is 24 feet and the width of the two dressing rooms is also 24 feet so that there would have been adequate off-stage space had it not been cut up by dressing rooms. However, as in the case of school No. 16, the stage is so shallow (13 feet) that it is practically useless for the production of plays. In school No. 1 half the possible off-stage space is cut up by stairs. This auditorium, with a capacity for 700 persons, is evidently designed for community use, yet the shallow stage (17 feet 6 inches) and the limited off-stage space seriously limit its use for the production of plays. The auditorium of school No. 2, already referred to, is another example of the cutting down of off-stage space by partitions.

TABLE 5.—*Depth of stage, width of proscenium arch, and space off stage in auditoriums in 30 elementary-school buildings*

School and State	Depth of stage	Width of stage		Depth of stage less than 20 feet	Width of proscenium arch			Space off stage less than width of proscenium arch
		Width of proscenium arch	Space off stage		More than 30 feet	Less than 24 feet	30 feet or less but not less than 24 feet	
1	2	3	4	5	6	7	8	9
	Ft. In.		Ft. In.					
No. 2 (Ohio)	27	35	6 6		X			X
No. 3 (New York)	25	40	19		X			X
No. 26 (California)	18	20	8	X		X		X
No. 21 (Wisconsin)	18	24	7	X			X	X
No. 1 (Illinois)	17 6	35	12	X	X			X
No. 13 (Missouri)	17	25	17	X			X	X
No. 14 (New York)	17	35	10	X	X			X
No. 7 (New Jersey)	17	32		X	X			X
No. 19 (Arkansas)	16	28	13	X			X	X
No. 25 (Pennsylvania)	16	28	12	X			X	X
No. 15 (California)	16	28	16	X			X	X
No. 22 (Alabama)	15	23	7	X		X		X
No. 9 (Oregon)	15	22	9	X		X		X
No. 5 (North Carolina)	15	24	21	X			X	X
No. 16 (Missouri)	14	24	2	X			X	X
No. 4 (New Jersey)	14	30	7	X			X	X
No. 12 (Connecticut)	14	29	2 6	X			X	X
No. 17 (Washington)	14	22	9	X		X		X
No. 30 (Iowa)	13 8½	18	4	X		X		X
No. 11 (Arkansas)	13 6	22	2	X		X		X
No. 10 (Texas)	13	20	3	X		X		X
No. 24 (Alabama)	13	28		X			X	X
No. 6 (Pennsylvania)	13	24	2	X			X	X
No. 18 (Minnesota)	13	26	5	X			X	X
No. 20 (Missouri)	12 6	21	14	X		X		X
No. 23 (Michigan)	11 6	24	16	X			X	X
No. 27 (Michigan)	11	23		X		X		X
No. 8 (Kansas)	10	22		X		X		X
No. 28 (Indiana)	9	20	10 5	X		X		X
No. 29 (Pennsylvania)	6 2	18	3	X		X		X
Total				28	5	12	13	30



Auditorium of School No. 8. The depth of the stage is adequate but the proscenium arch is too wide and the off-stage space is cut down by partitions.

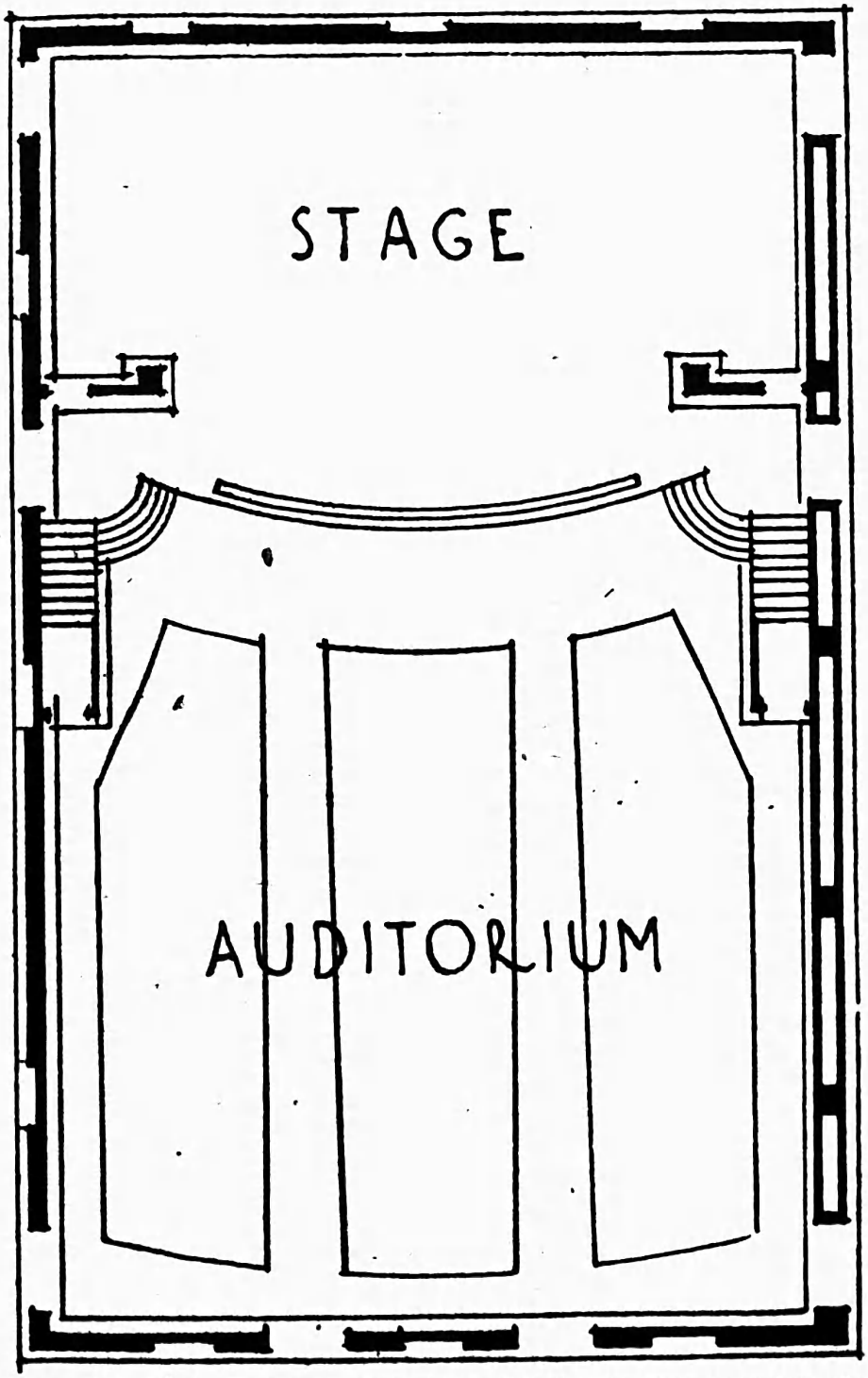
As will be seen from table 5, there is no auditorium stage in the 30 schools studied which met all the standards recommended in part II. In the case of two schools in which the depth of stage was sufficient (25 feet or more), the proscenium arch was too wide and the off-stage space entirely inadequate. In the schools where the width of the proscenium arch was satisfactory (24 to 30 feet), the stages were shallow and the off-stage space extremely limited. It is practically impossible to reconstruct an auditorium stage once it is built. Hence the desirability of serious consideration and discussion of the recommendations for stage construction made in part II.

TABLE 6.—*Depth of stage, width of proscenium arch, space off stage, in auditoriums in 8 high-school buildings*

School and State	Depth of stage	Width of stage		Depth of stage less than 20 feet	Width of proscenium arch			Space off stage less than width of proscenium arch
		Width of proscenium arch	Space off stage		More than 30 feet	Less than 24 feet	30 feet or less but not less than 24 feet	
1	2	3	4	5	6	7	8	9
	Ft. In.	*Ft. In.*	*Ft. In.*					
No. 1 (Connecticut)	21	32	[1] 2		X			X
No. 2 (Louisiana)	21	33 2	11		X			X
No. 3 (Michigan)	28 5	49	[2] 29 2		X			X
No. 4 (New York)	24	55 6	22 8		X			X
No. 5 (New York)	22	35	36		X			X
No. 6 (New York)	16	24 6	(?)	X			X	
No. 7 (Pennsylvania)	25 6	39 6	[4] 15		X			X
No. 8 (Wisconsin)	20	34	[1] 2				X	X

[1] Dressing rooms on each side of stage.
[2] Plus wardrobe on one side and gymnasium director's office on the other side.
[3] Whole space off stage given to vestibule and stairs to dressing rooms above stage. Stage is called platform (cement with linoleum floor).
[4] Stairs on one side of stage to boys' dressing room upstairs. At left rear there is a girls' dressing room 28 by 30 feet and storage room 21 by 38 feet.

The schools referred to in the preceding pages were elementary schools. It would seem probable that the stages in high-school buildings would be better planned. However, examination of floor plans of recently erected high-school buildings indicates that in general the same faults apply to the high-school auditorium with the exception of the depth of stage. For example, in eight recently constructed high-school buildings with capacities ranging from 800 to 1,600, half of them had auditorium stages that were less than 25 feet in depth, and the proscenium arch in every one of the schools except two was extremely wide in proportion to the depth and width of the stage; for example, in one case where the total width of stage was 54 feet 6 inches, the width of the proscenium arch was 39 feet 6 inches, while in another case where the width of the stage was 78 feet 2 inches, the width of the proscenium arch was 55 feet 6 inches. Also, in only one case was the space off stage equal to the width of the proscenium arch;



Auditorium of School No. 8. The depth of stage is adequate (25 feet) and the off-stage space is free of partitions, but the width of the proscenium arch is twice as great as the width of the off-stage space.

in most cases it was less than half the width of the proscenium arch and in all but two cases the off-stage space was cut up by dressing rooms. (See table 6.) That auditoriums even in modern high-school buildings are still thought of as "assembly halls" rather than as auditoriums in which plays can be produced is shown by the fact that in one of the auditoriums in a high-school building with a capacity of 2,800 pupils, situated in a large city, the stage is designated on the floor plan as a "platform."

SOME EXAMPLES OF PLANNING THE AUDITORIUM FOR BOTH SCHOOL AND COMMUNITY USE

In spite of the facts just given, decided advances have been made in recent years in the planning of auditoriums for school and community use. For example, in the Gary, Ind., public schools where the more intensive use of the auditorium was begun over 30 years ago, the construction and equipment of the auditorium has been based for many years on the best practices in theater design and construction. Moreover, these auditoriums are used continuously not only during the day by the school but by the community every evening during the week, including Saturday and Sunday.

One of the most recent examples of the construction of the high-school auditorium as a theater for both school and community use is the auditorium in the Shorewood High School, Shorewood, Wis.

The Auditorium of the Shorewood High School.

The auditorium of the Shorewood High School contains not only an auditorium with a seating capacity of 1,300 but also a "little theater" with stage and many accessory rooms, such as, costume shop, scene shop, etc. The building was designed not primarily as a theater but as a high-school auditorium so planned as to make possible a diversified program of school and community auditorium activities.

As will be seen from the first floor plan, there is an adequate foyer and lounge and all the usual features of the front-of-house area. The main floor has a seating capacity for 785 and there is an ample orchestra pit which will accommodate a school orchestra or band of 60 members. The proscenium opening is 36 feet wide and 24 feet high. The off-stage space on either side of the proscenium opening is 18 feet. In other words, the off-stage space on both sides is equal to the width of the proscenium opening. The depth of the stage is 32 feet. There is a completely equipped gridiron located 52 feet above the stage floor. There is a large space at one side of the stage for storage of properties and lighting equipment. There is a loading platform and large scene door provided at stage floor level to make possible transportation of scenery and equipment. On the other side of the stage there is pro-

vided an adequate make-up room which has an entrance into what is designated on the floor plan as a classroom but which, during performances, can be used for a dressing room.

On the ground floor there is a large stage storage space directly under the stage and on each side of it a scene shop and costume shop with stairs leading out of the costume shop to the make-up room directly above.

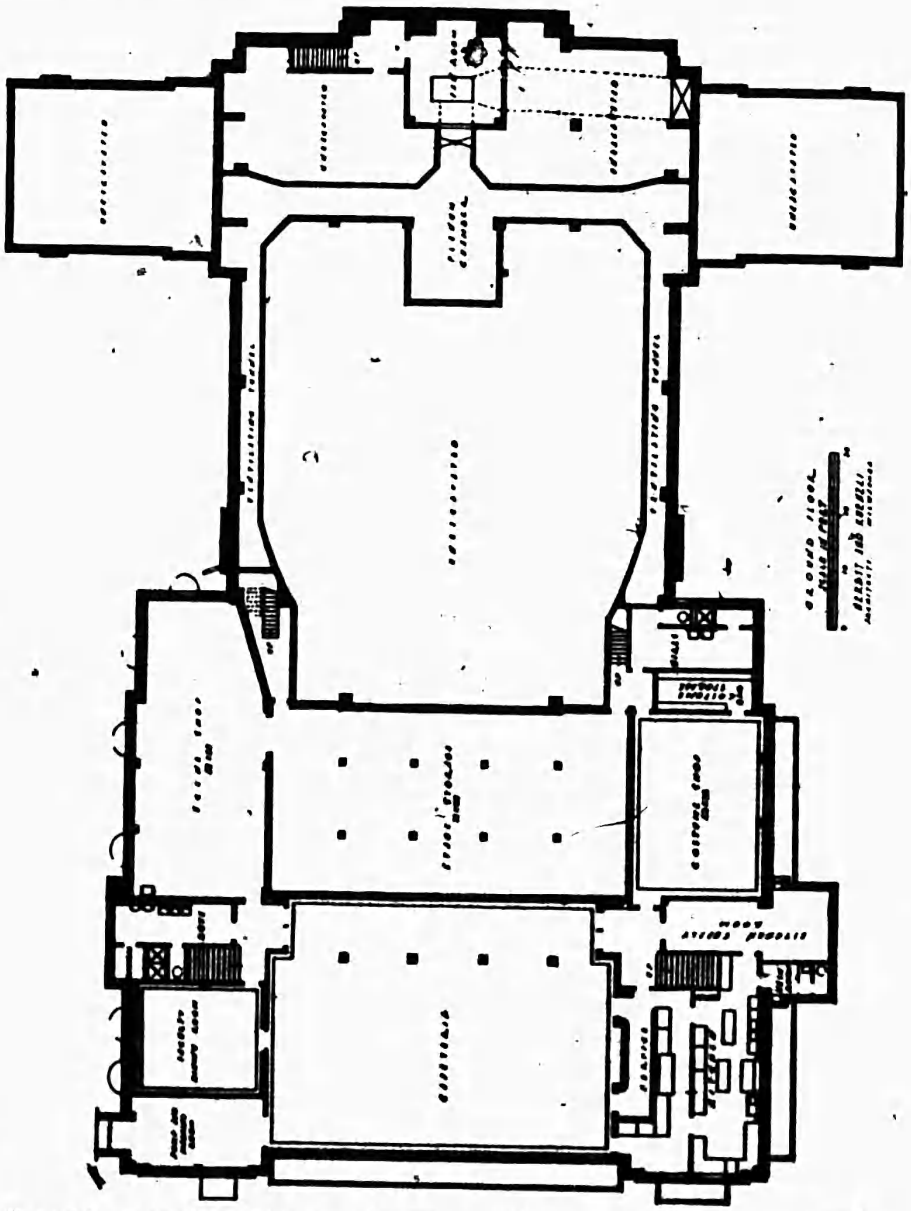
In addition to the large auditorium, there is a small auditorium or "little theater" which serves as a laboratory for school work and dramatics. In some schools this would be called an "expression" or dramatics room. It seats approximately 150 and is admirably adapted for daily work in the auditorium along the lines referred to in the preceding section. There are two small music rooms at the rear of this laboratory theater. These rooms can, of course, be used for work in expression as well as music.

One of the most important features of the Shorewood High School auditorium is the lighting equipment of the stage for which Theodore Fuchs, who teaches stage lighting at Northwestern University, was largely responsible.

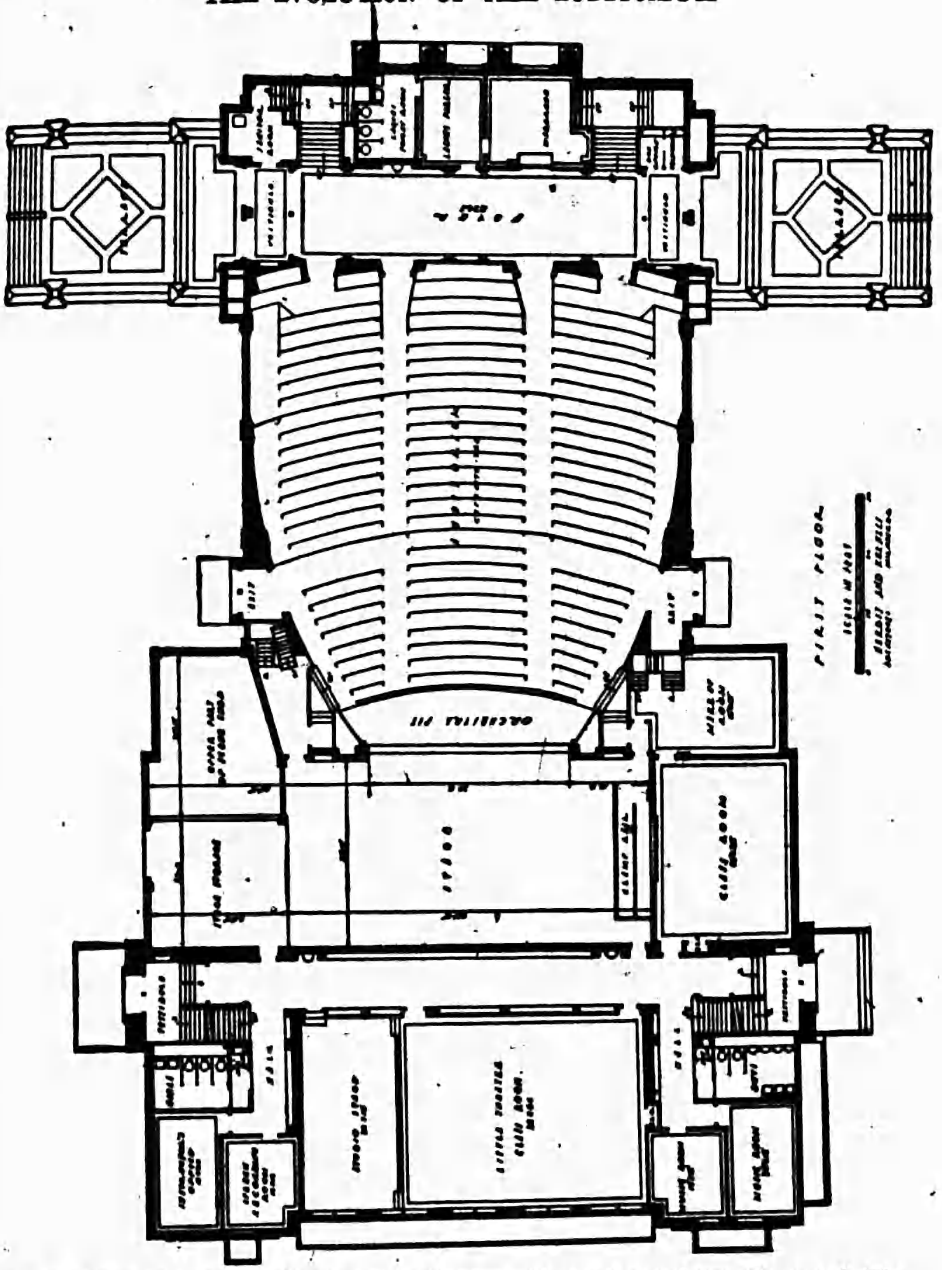
Because lighting equipment plays such an important part on the modern stage, the following description of the lighting of the Shorewood auditorium stage, written by Mr. Fuchs in a recent article in the *Theatre Arts Monthly*, is worthy of careful study:

> The lighting equipment of the stage is complete and modern in character. Designed especially for this auditorium, it represents the adaptation of the best modern professional practices to the specific requirements of a school theater stage, for use and handling by students in training rather than by professional stage hands. Footlights are of the highly effective indirect type; the "time-honored tin trough" with its glaring lights is gone. Borderlights have unusual features of mounting and flexible circuit arrangement. A powerful set of cyclorama lights is provided upstage for lighting the plaster cyclorama at the back wall. The red, green, and blue color primary system of color mixture is used (rather than the useless conventional system of red, blue, and white) in the footlights, borderlights, and cyclorama lights. Twenty spotlights, essential to subtle acting-area lighting, are provided at the teaser position, and 8 at the tormentor positions, all these being supplemented by 10 larger ones in ceiling ports in the auditorium. Ample accommodation at strategic points has been provided for plugging-in the large complement of portable lighting equipment, which consists of extra spotlights, floodlights, striplights, scene projectors, mobile lighting towers, etc. A projection booth at the back of the balcony is complete with light projection and sound motion-picture equipment. A special telephone system interconnects the director's station in the auditorium with projection booth, ceiling spotlight ports, and stage switchboard.
>
> The outstanding feature of the lighting equipment is undoubtedly the switchboard. This is of ample capacity and is of the newer flexible type, which means that no lighting equipment is permanently connected to it.

Connections between the 134 lighting equipment circuits and the 44 dimmer control circuits is made, in any multiple combination or set-up required by the lighting demands of any particular situation, by means of flexible plugging cords and receptacles. These cords are counterweighted and retractable, as on a telephone switchboard, and are a great improvement over previous methods of interconnection between switchboard circuits. For school use, this type of switchboard represents a distinct advance over the outmoded vaudeville-type switchboard with its stereotyped inflexible set-up of red-blue-white color circuits. Not only does it make possible more varied, subtle and effective lighting results but also it possesses features of considerable intrinsic educational value.

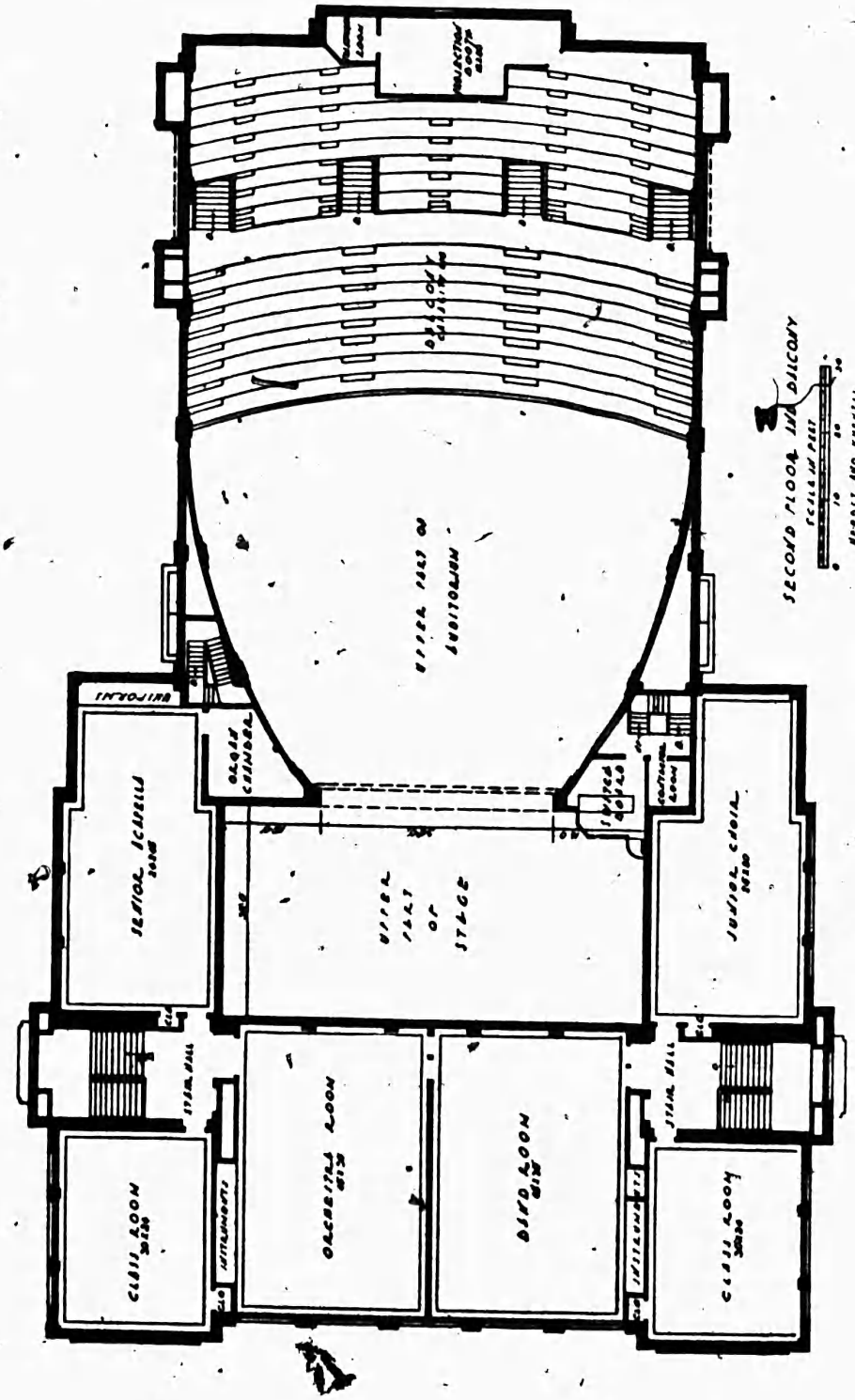


Ground floor plan of the auditorium of the Shorewood high-school building, Shorewood, Wis.



First floor plan of the auditorium of the Shorewood high-school building, Shorewood, Wis.

The total cost of the Shorewood High School auditorium building, including equipment and stage lighting, was $311,500. It should be remembered, however, that this building contains not only an auditorium with a capacity of 1,300 and with many accessory rooms but also a little theater with a capacity of 150, plus a cafeteria, kitchen, and dressing room, and six additional rooms. In other words, the rooms exclusive of the large auditorium have a capacity equal to 10 classrooms. These 10 rooms at $15,000 each would cost $150,000. This would leave approximately $150,000 as the cost of the auditorium proper with its accessory rooms. This is no more than the usual cost for an auditorium of this size even without the many accessory rooms.



Second floor plan of the auditorium of the Shorewood high-school building, Shorewood, Wis.

In other words, if an auditorium building contains other educational facilities which supplement the work of the auditorium and which can be used continuously throughout the day, the capacity of the building is increased and the per pupil cost lowered.

That there is a real demand for, and an immediate response to, the opportunities offered by such an auditorium are shown by the following facts submitted by Superintendent Hemenway:

> We have more adults than children attending school although Shorewood is a highly restricted residential community. For example, the population of Shorewood is 15,000; our day-school enrollment from kindergarten through high school is approximately 2,600, but 3,300 individuals from Shorewood and surrounding territory are enrolled in night school. Between 1,000 and 1,500 out-of-school activities are scheduled a year in advance in the auditorium. The auditorium also enables us to hold free Sunday afternoon lectures which average an attendance of better than 900.

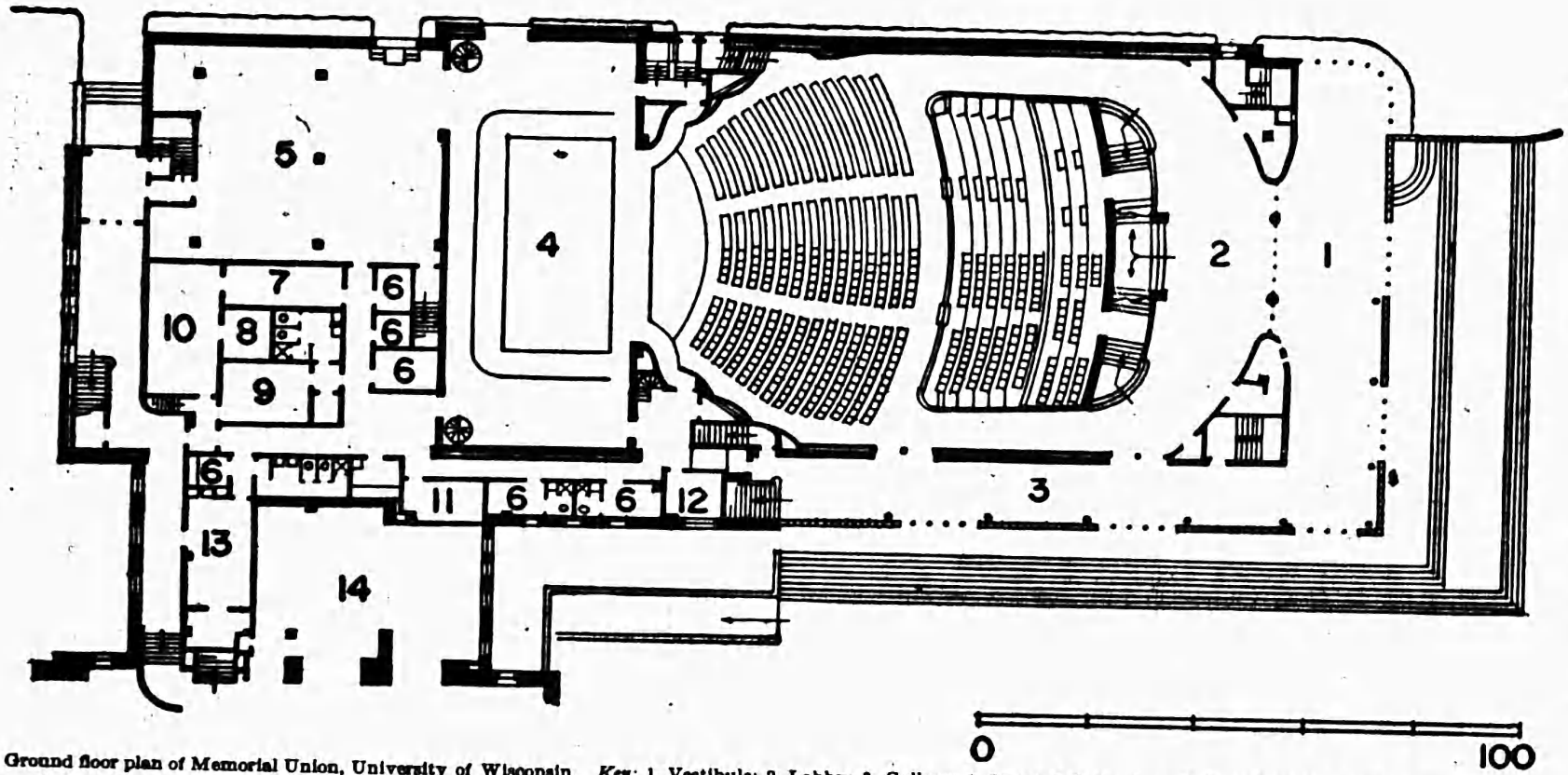
These figures are eloquent proof of the genuine interest of the community in use of the school plant for dramatics and allied activities, provided the building is so planned as to make it possible to carry on these activities easily and effectively.

The Auditorium of the Memorial Union, University of Wisconsin.

The new addition for the Memorial Union [10] at the University of Wisconsin is another example of an auditorium or theater building erected as a community center with facilities for many activities which are both supplementary to the theater and which have in themselves educational and cultural value. Lee Simonson, who was the theater consultant on the building, states that:

> I have been particularly interested in the proposed Union addition because the problem it presents was not that of building an isolated and specialized theater. I have, for a number of years, maintained that the specialized theater building was an essentially wasteful and extravagant form of building. An auditorium and a technically well-equipped stage always involve a comparatively large cubage and a high building cost per cubic foot. But a theater that is nothing more than a stage house and auditorium represents the maximum of expense and the minimum of use—often as little as 32 hours a week, even if used for a performance every night and for two matinees. Whereas in association with other units with relatively lower building cost per cubic foot, the maintenance overhead and running expense can be apportioned, and its use as well as its social usefulness greatly increased.
>
> These theater buildings should be the center of all a community's cultural interests and must be flexible enough to be easily converted for concerts, choruses, moving pictures, public lectures, regional conventions, traveling or local art exhibitions. * * * Planning these new theaters is therefore an architectural problem of the first order. The standardized commercial theater plan, like the standardized city apartment plan, could be done from the top of an architect's mind. Noncommercial theaters, like the new housing developments, require maximum architectural imagination and resource.

[10] Corbett and MacMurray, architects, State Bureau of Engineering, resident architect; Michael M. Hare, project designer; Lee Simonson, theater consultant. (Floor plans reproduced by courtesy of the *Architectural Record*.)



Ground floor plan of Memorial Union, University of Wisconsin. *Key:* 1, Vestibule; 2, Lobby; 3, Gallery; 4, Stage; 5, Stage shop; 6, Dressing rooms; 7, Costume storage; 8, Dyeing room; 9, Male chorus; 10, Costume shop; 11, Dressing room; 12, Assistant manager; 13, Combined Green room, female chorus room, and make-up room.

Michael M. Hare, project designer; Lee Simonson, theater consultant; Corbett and MacMurray, architects; State Bureau of Engineering, resident architect.

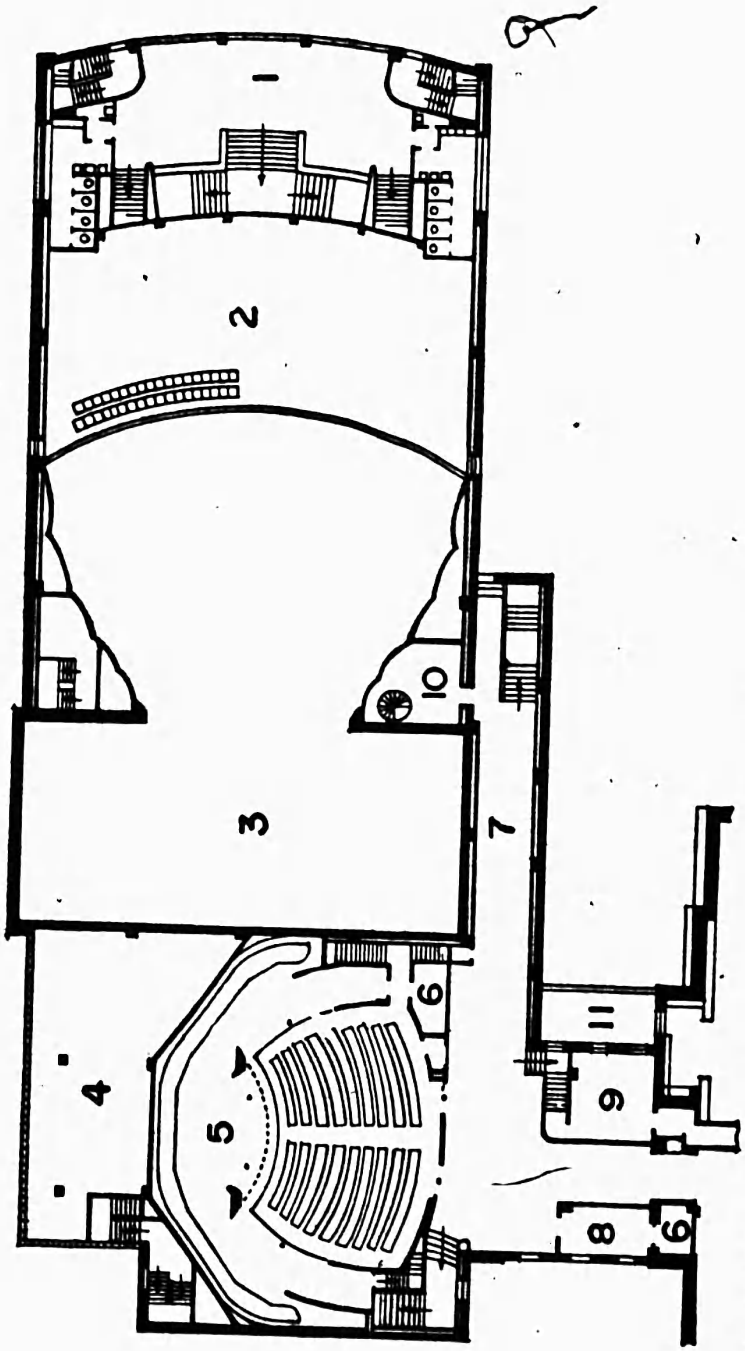
The Memorial Union addition contains a large auditorium seating 1,300, together with such accessory rooms as a stage shop, costume workshop, dyeing room, costume storage, make-up room, etc. In addition, there is a small laboratory theater seating 185 persons and rooms for experimental work in speech, stage technique, cinema projection, radio rehearsal, and broadcasting. In the laboratory-theater balcony there are also observation, viewing, and projection rooms which permit class discussion of performances in progress.

The main auditorium is a theater and also, due to its elevated forestage, it can be easily and quickly converted into a concert stage for orchestra, choruses, soloists, dance recitals, or a lecture platform. Also, the auditorium is easily reduced in size to two-thirds or to one-half of its total capacity to fit the audiences expected. The corridors are ample enough to be social centers during the entr'acte and can be used also as supplementary art galleries, rehearsal rooms, or informal meeting rooms. The smaller laboratory theater is particularly suited for experimental work in the coordination of body and speech, and experimental setting and lighting; it can serve also as a small lecture hall.

Although this auditorium was planned for a university building rather than for a high school, the plans are reproduced here because they are suggestive for the planning of auditoriums in large central high schools in cities or rural areas, and also because the general design of the auditorium and the plan of the stage are applicable to smaller auditoriums if reduced in the same proportions.

Undesirability of the Combined Auditorium-Gymnasium.

No mention has been made of the possibility of using a combined auditorium-gymnasium as an auditorium because it is practically impossible to make a satisfactory auditorium out of a combined auditorium-gymnasium. The reason for this is obvious: A room that is satisfactory for throwing a basketball from one end of it to the other cannot have the atmosphere necessary for a theater. The argument is often advanced that, undesirable as combined auditorium-gymnasiums are, yet it is necessary to have them in place of a separate auditorium and separate gymnasium because the auditorium-gymnasium requires less cubage and is, therefore, less expensive. There are two answers to this argument: First, it is never inexpensive to have something that is so unsatisfactory that it is rarely used. Thousands of dollars have been spent on combined auditorium-gymnasiums which are larger than is necessary either for an auditorium or a gymnasium As it is impossible to develop satisfactory auditorium activities in such a room, it is used in practice almost exclusively as a gymnasium, and the cubage necessary for the stage is practically waste space except on rare occasions. Second, it is not necessarily true that it is less expensive to have a combined auditorium-gym-



First floor plan of Memorial Union, University of Wisconsin. *Key:* 1, Balcony lobby; 2, Balcony seating; 3, Stagehouse; 4, Upper part, stage shop; 5, Laboratory theater; 6, Storage; 7, Gallery; 8, Board room; 9, Manager; 10, Stage manager; 11, Terrace.

nasium than a separate auditorium and a separate gymnasium. On the contrary, a recent study of school-building plans conducted by the Office of Education showed that if auditoriums are constructed to provide for 33 to 50 percent of the capacity of the school, instead of the total enrollment, then it is possible to construct a separate auditorium and a separate gymnasium, the total cubage of which is no greater, in fact often less, than the cubage of the combined auditorium-gymnasium. The results of this study are summarized in table 7, which appeared in a recent article in *The American School and University*.[11]

TABLE 7.—*Total number of cubic feet and number of cubic feet per pupil in separate auditoriums and gymnasiums and in combined auditorium-gymnasiums*

School No.[1]	Number of rooms	Number of cubic feet in separate auditoriums and gymnasiums			Number of cubic feet in combined auditorium-gymnasiums	Capacity of school on basis of 40 pupils per room	Number of cubic feet per pupil
		In auditorium	In gymnasium	Total			
1	2	3	4	5	6	7	8
1	16				46,874	640	73.2
2	16	26,911	29,750	56,661		640	88.5
3	20				145,936	800	182.4
4	21	84,000	38,400	122,400		840	145.7
5	33	62,540	47,970	110,510		1,320	83.7
6	34				150,412	1,369	110.6

[1] These are not the same schools as the ones referred to in tables 1–6.

If there is a popular demand for a very large gymnasium for basketball games, then such a gymnasium should be constructed, but it should be recognized that it can never function satisfactorily as an auditorium. Under such circumstances it is better to provide a small auditorium which would accommodate 150 to 200 persons, and which would be satisfactory for dramatic work. What is not desirable is to spend large sums of money on a building unit in the hope that what is a gymnasium one day can become a theater the next day.

As a matter of fact, as the use of the auditorium as a theater becomes more widespread, the demand is growing that auditoriums be more adequately planned from the standpoint of functional use. To accomplish this purpose the aid of experts familiar with stage design is necessary if the schools are to avoid in the future the mistakes that have been made in the past. For this reason Mr. Simonson's suggestions in part II for the technical planning of the school auditorium as a theater, with special attention to the design and construction of the stage, should be of practical value to both superintendents and architects.

[11] The Combined Auditorium-Gymnasium: The Dr. Jekyll and Mr. Hyde of the School Building, by Alice Barrows, *The American School and University*, 1938, pp. 291-295.

Part II: PLANNING THE AUDITORIUM AS A THEATER

By

LEE SIMONSON

Scenic Designer and Theater Consultant

THE THEATER AS PART OF THE MODERN CURRICULUM

There is every indication that college and high-school students from coast to coast are increasingly interested in the theater, eager to study, to write, and to perform plays. The new theater at Stanford, with both a large and small auditorium, opened in 1937, was made possible because the undergraduates were so determined to have a modern, technically well-equipped theater that they voted for an annual per capita tax on every member of the student body which will eventually repay the building loan. The new theater at the University of Wisconsin, with a large stage, a laboratory theater, studios, and workshops, now being built, is an addition to the Wisconsin Union, financed by undergraduate and graduate contributions. A P. W. A. loan covers not more than one-third of the cost of the building. The balance of the building fund is provided by a loan, authorized by the university, but guaranteed by the annual income of the Union. The fact that these two playhouses represent investments, respectively, of approximately half a million and three-quarters of a million dollars is itself a measure of undergraduate initiative and undergraduate enthusiasm where the theater is concerned.

Amherst, the University of Indiana, and Oberlin have new theaters completed or under way. Wheaton College has just concluded an architectural competition to select the architect for its new art center, which will include two auditoriums. Dartmouth College is now actively planning the largest of these theater centers. Even where students must still make the best of antiquated or makeshift stages, their activity is amazing. The July 1938 issue of *Theatre Arts Monthly* demonstrates that plays by leading American and European playwrights, rarely or never revived after their initial Broadway run, are kept alive in the repertory of college or amateur theaters. Eugene O'Neil's *Beyond the Horizon* has had nearly a hundred productions since its last professional production 14 years ago. *He Who Gets Slapped* last year was given seven productions in six States, 16 years after its initial performance at the Theater Guild. *Yellow Jack*, by Sidney Howard, has averaged 75 performances a year. The amateurs in our so-called "tributary theater" are constantly becoming more professional. Recently at Pennsylvania State College visitors to the drama conference saw a performance of *The Dybbuk*, well-set, well-

lighted, with a genuine feeling for ensemble in the playing, including the esoteric ritual and music involved, and one extraordinarily able characterization of the octogenarian Chief Rabbi by a boy of 18.

When lecturing on the history of stagecraft at summer schools in various colleges and universities in the East, the Middle West, and on the West coast, it has been an astonishing experience to find how many of the students came from regions where they could never have seen a theatrical performance by a professional company. In several of the summer schools the second largest enrollment is regularly in the department of speech of which dramatics is a part. As the enrollment consists largely of high-school teachers establishing additional credits, there is obviously a growing demand for instruction in dramatics in secondary schools. In many of them it is already part of the curriculum. The Shorewood High School at Shorewood, Wis., has a stage and auditorium technically superior in equipment and design to many Broadway playhouses. The new building of Hunter College in New York City, which includes the so-called model school of primary and high-school grades, will have not only a little theater with an auditorium seating 712 but also a smaller stage for the use of its youngest groups. Hallie Flanagan recently reported that on the West-coast tours of the W. P. A. unit, revivals of the classics and plays for children were the most popular. The latter invariably sold out even in the smallest communities. One youngster who had just seen her first play, when asked by her mother which she preferred, the theater or the movies, replied "Mamma, I think I like the round actors better."

When George P. Baker, 30 years or so ago at Harvard, began his courses on the study of the contemporary theater, they were considered, with his theater workshop, a slightly mad innovation. But the result of his pioneering has been the addition of a new domain to the modern curriculum. The study of the theater in all its phases is a present-day cultural and educational force. A well-equipped theater workshop will presently be considered an essential part of a completely equipped school building as gymnasiums and science laboratories are today.

If one remembers that "theater" includes music and the dance, it should be obvious that training in "dramatics" can be an essential part of modern education even with the youngest children of the primary grades. They will take to it as spontaneously as they once did to dancing to a hurdy-gurdy. They are continually play-acting when they play and if their native imagination is released they are quite capable of writing plays of their own and acting them with as much gusto as they now devote to impersonating gangsters and G-men. At the Walden School in New York a number of such

performances were given in which the technique of the *commedia dell'arte* was successfully used; there were no set speeches to be memorized, no set word cues. Each child understood the gist or the meaning of what had to be said when his or her turn came, and improvised the speech for each occasion. There were surprisingly few hitches in performances that lasted half or three-quarters of an hour. The same imagination that is displayed in so many exhibitions of young children's drawings, when they are stimulated to use their imagination and not set to copying, is demonstrated in their work in theater. They often show amazing ingenuity, as in one performance given by 8- and 9-year-old children in a play written by themselves, in which the hero had to go to the moon in a barrel. The barrel was provided, but there being no means of hoisting it, a large roll of wrapping paper was hung from the schoolroom ceiling, covered with painted constellations. At the given moment it was unrolled, the descending heavens giving the illusion that the barrel was moving upward.

The discipline of the modern dance, when taught by someone soundly trained in its essential technique, will produce bodily coordination, poise, and a well-rounded physical development that no specialized form of athletics can induce. The sense of rhythm developed is one of the soundest bases for the study of music. When such training is coordinated with speech, the risk of developing a few "show-offs" is more than compensated by the psychological release, the banishment of the inhibitions, the clumsiness, awkwardness, and shyness that torment so many children. The simplest classic pageant (or Chinese, Japanese, Indian, or Mayan legend) can, in the course of putting it on a stage, be made a means of understanding a historic culture more vividly and directly than any amount of textbook instruction can give. To be shown the simple patterns, for instance, of Greek tunics or Roman togas, to learn the materials of which they were made, to approximate their present-day equivalents, to study typical ornaments used to decorate them, to dye and paint the material, to see how, when correctly cut, the material does hang naturally in classic folds of the classic statues,[12] to compare the results with photographs or casts of these statues, to study the typical forms of Greek vases and libation jars, to model them in clay, to cast them in plaster, to paint them, and in the process to understand their appropriateness to the life they ornamented and the ritual they adorned—here in the course of putting on a play is a correlation, not only of any number of arts and crafts, domestic-science and appreciation-of-art courses, but a direct means of giving

[12] A Concise Dictionary of Greek and Roman Antiquities, edited by F. W. Cornish.

every participant a sense of the relation of art to life, of beauty to the raw materials of form, which is education in the most fundamental sense. The same process can be ramified among older groups to include scenic design and scene painting, an acquaintance with historic architecture and perspective, carpentry, wood carving, metalwork, and the greater elaboration of period dressmaking.

The high-school girl who has analyzed the typical patterns of an Empire gown, or one of the 30's, 60's, 70's, or 80's, has acquired a first-hand knowledge of the relation of cut to style and a sense of style that will eventually stand her in better stead than copying patterns or poring over the pages of the fashion magazines. The shop training involved is of particular importance. We are too apt to forget that our machine civilization is eventually based upon handicraft skill. The models for our machine dies, accurate to the thousandth of an inch, have to be made by hand. One of the most essential jobs of our secondary schools is to begin to develop the key craftsmen needed to maintain our industrial processes. On its purely mechanical side a well-equipped theater, in its electrical equipment particularly, supplies any number of vital connections with the teaching of the applied sciences of optics and electrical engineering, and is one of the readiest means of discovering mechanical aptitude and developing it.

PLANNING A WORKABLE STAGE

Unfortunately, although school theaters are becoming as essential as gymnasiums and science laboratories, they are rarely planned or equipped with any sound knowledge of their technical requirements. Architects and school boards very rarely call in anyone trained in the professional theater as a consultant. The lay-out of most stages is determined by a guess, usually the wrong guess, with the result that almost all of them are cramped, wrong in their essential proportions, technically inefficient, and obsolete almost as soon as they are built. Once built they are too costly to remodel, although at the time that plans were being drawn they could have been made right at an additional cost that represented a small percent of the total cost of the building. Where the auditorium and its so-called stage are concerned, the order of the day seems to be Goethe's dictum "In der Beschränkung zeigt sich erst der Meister"—freely translated, "Mastery shows itself best in triumphing over limitations." This may be true. It may also be true that Pasteur's laboratory judged by current standards was almost primitive. Nevertheless we do not keep our school science laboratories primitive in order to develop modern Pasteurs, deciding that a couple of kitchen sinks will do.

Nor do we set out to breed modern Lincolns by teaching pupils to write with charcoal by the light of an open fire on random shingles. We are instead very careful to give them the right amount of electric foot-candle power and obviate eyestrain. The dimensions of an efficient and workable stage can be almost as easily determined and set as the area needed for a basketball game. Lighting equipment and the switchboards needed to control it have been perfected within the last few years to the point of being made immensely compact, efficient, and almost foolproof. With the mechanical equipment required for scene shifting almost as standard as modern heating and ventilating equipment, there is no reason why the mechanical and electrical equipment of a stage should not be as intelligently planned and as intelligently installed.

Before a stage and an auditorium can be equipped they must be fundamentally right in their dimensions and their general proportions. The common mistake is to make the auditorium far too big, the proscenium opening ridiculously wide and the stage itself impossibly shallow, because on a few occasions a year it may be traditional to have the entire school meet in a body for general assembly or graduation exercises. The resulting seating capacity of 1,500 and often 2,000 seats, besides adding an unnecessary amount of building cube cost to the total cost of the building, puts an almost impossible handicap on the use of the auditorium as a theater. Most professional theaters in New York have a capacity of 1,000 seats or slightly less. The larger houses seating 1,200 to 1,500 are invariably reserved for musical shows. Most managers avoid them for presenting plays—the plays invariably "get lost," don't "get over." Very few professional actors can project their trained voices or "get across the footlights" in a 1,500-seat auditorium. In order to get sight lines from a spread of so many seats, the proscenium is spread in turn often to 80 feet, as in one school auditorium of which I have seen a photograph. This is again the height, or rather the breadth, of the ridiculous. Opera-house prosceniums are usually only 50 to 60 feet wide, partly to accommodate large choruses, partly to provide space in the orchestra pit for a full symphony orchestra. A 40-foot proscenium is used only in musical comedies in order to give space for enough chorus girls to string out in long lines while they do their conventional dance routine. The average professional production plays in a proscenium 32 to 34 feet wide. For a school auditorium a proscenium width of 30 to 32 feet is an ample maximum, 24 feet a minimum. The auditorium capacity should range from 500 or less to 750 in order to give the intimacy necessary to an effective theater where amateurs perform. If for any essential reason the auditorium serves as a community center as well, and visiting soloists,

lecturers, or moving pictures can fill its 1,200 or 1,500 seats often enough to warrant their being installed, provision should be made in the original architectural plan (see the Wisconsin Union Theatre) for partitioning the auditorium with curtains or movable partitions so that it can be scaled down to one-half its seating capacity or less for regular use. (See figure 1.)

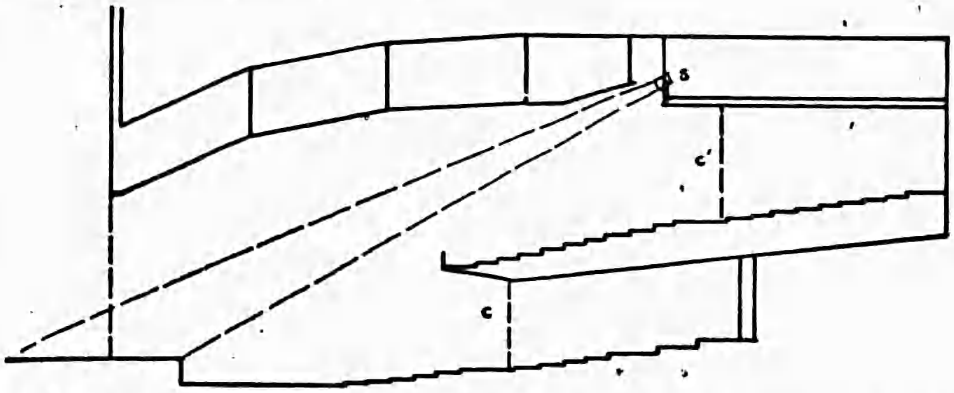


FIGURE 1.—Diagram showing division of auditorium by curtains for reducing seating capacity, and typical position of ceiling-beam spotlights. Key: S=ceiling beam spots; c-c=dividing curtains.

The advantage of keeping a proscenium opening to 30 feet is that it allows room for working space backstage and offstage. The space seen through the proscenium when the curtain is up, the space used for the acting of the play, is only part of the space needed to run the performance. The acting area of any stage should never be much more than one-third of its total area. The stage space which the public does not see when the curtain is up is as essential as the space which it does see. Even where elaborate scenery is not used, and simpler or more stylized productions are done, stacking and storage space must be provided. However abstract staging may have occasionally become, no one has yet devised an abstract substitute for the tables, benches, couches, or chairs which players act on, in addition to all the other solid objects they handle, or act against, called properties, such as walls, statues, altars, platforms, trees, shrubs, etc. Furniture bulks large and requires ample stacking space, particularly as a piano, off stage if not on, is usually needed, and a succession of one-act plays often forms part of a program. There must be enough room not only to give acting space to the backdrop or cyclorama (see diagram) but enough space to light this from above and below—borders cannot be hung or set nearer than 4 feet if they are to light effectively—and there must be space besides for actors to cross freely in back of the backdrop without colliding with stacked scenery or properties. There must be space as well for actors to wait out of sight before making their entrances. Their exits right and left must not be blocked. Ample off-stage space is essential space on

school stages where chorus groups are so often involved. People in little theaters are no smaller than elsewhere. The size of a chair, a sofa, or table remains standard and each occupies just as much cubic space off stage as on. Not only playing space but working space is the essential requirement.

A safe rule is that the total stage space from sidewall to sidewall should never be less than twice the width of the proscenium, or one-half the width of proscenium stage right and stage left. For a proscenium opening of 30 feet the stage width will be 60. Every foot that can be added to this off-stage space up to 70 feet will increase the technical and mechanical efficiency of the stage. As to depth, 20 feet from the curtain is a minimum for the acting area, particularly on stages where dances and dance pageants are performed. Allowing 4 feet of space for lighting to the backdrop or cyclorama, this places the rear setting line at 24 feet. Allowing 5 to 6 feet back of this for stacking and passageway, the rear wall is 30 feet back of the curtain line. The total depth of a stage should never be less than 25 feet as the acting area then becomes too shallow. The height of the stage above the floor at the first row of seats should be 2 feet 8 inches. Under certain conditions it may be reduced to 2 feet 6 inches or 2 feet. It should never be higher than 3 feet.

In front of the curtain line an "apron" of 30 inches in depth should be provided to house footlights. These should be of the disappearing type, now standard with all leading manufacturers, so that the apron can be used as a forestage when so needed. It is highly desirable to provide more forestage than this, semicircular in shape, 8 to 12 feet deep at its widest point, for use in formal productions and revivals staged in the Greek or Elizabethan manner. Such a forestage is best made portable, a series of parallels (collapsible trestles) and wooden platforms, in unit lengths, that can be installed when needed and afterwards removed when realistic plays are given, and when so much blank space of unused stage between the audience and the actors within the set is a handicap in projecting the play. A valuable and almost essential adjunct to a forestage is a pair of portals, right and left, through which a chorus or players in an interlude can enter without coming through the proscenium curtain. Where funds permit and the auditorium is intensively used, an electric elevator forestage should be considered, which can be raised up 3 feet above auditorium level, brought to the floor level and used for additional seats, sunk below the stage floor to serve as an orchestra pit. The supposedly prohibitive cost and mechanical elaboration of such a piece of equipment usually prevents it from being made part of an auditorium plan. As a matter of fact, it can be operated by a push-button. On a recent job for which I was theater consultant, the high

bid for such an electric elevator, 34 feet wide and 12 feet deep, installed, was $6,500.

As to the stage floor itself, the commonest mistake is to increase its cost by making it of hardwood and thereby making it almost useless as far as stage setting is concerned. Stage settings have to be propped at regular intervals by stage braces which are quickly screwed into the floor when the scene is set and unscrewed as quickly when the set is struck. They cannot be screwed into hardwood. Long-grained softwood should be used. The long grain will reduce splintering to a minimum. But in order to protect the feet of barefoot dance groups, the stage floor can be covered with linoleum which stage screws can take hold of. An area equal to the acting area of the stage, supported on adjustable sleepers, should be left free, over a cellar space of 9 to 10 feet, for trap space and exits and entrances from below stage level. These traps should be incorporated in the stage floor as removable sections in units of 4 by 4 feet or 4 by 5 feet as a maximum; as longer sections are too heavy for easy handling. Circular iron stairways leading to the cellar space right and left at the extreme corners of the stage are essential to provide cross-overs often required by the action of a performance, also to provide access, without cluttering the stage floor, for large chorus groups which can assemble in the cellar awaiting their cue Whether or not local fire laws prohibit storage directly underneath the stage, this cellar space should never be used for the storage of inflammable properties such as furniture, or for a carpenter shop or a paint room. The fire hazard is too great. The stage floor, stage right and left, beyond the acting area can be laid over cement and the cellar space below this divided into fireproof storage rooms. Where painted scenery is in general use, an asbestos curtain should invariably be part of the equipment. The danger in a fire in an auditorium is not flame but the initial panic caused by smoke. For this reason the stage house is best placed so that it either forms a wing of the building or so that its rear wall is an exterior one. This will also facilitate the placing of the stage door, no less than 6 feet wide and 10 feet high, where properties and scenery can be directly hauled onto the stage, and also avoid the necessity of dragging 30-foot wooden battens, electric-light borders, cable, etc., through the corridors of the building.

Space for carpenter and paint workshops should be on stage level, have direct access to the stage, and when air-conditioning is not provided also have direct access to outer air and daylight. The costume workroom may be on another level. Daylight here is also essential and direct access to the dressing rooms.

The height of a proscenium opening 30 feet wide need never be more than 20 feet high. This is an agreeable proportion. The curtain will

rarely be raised more than 15 to 17 feet. The opening itself should not be emphasized with ornament, which will merely be an eyesore when the forestage is in use. The more subtly and unobtrusively the walls of the auditorium die into the proscenium opening the better.

The height of the stage proper, backstage, or the stage house as it is called, is a combined problem of sight lines and the method used to strike and set scenery. Scenery is built in small units and has to be lashed together when set, and unlashed when struck. Smaller units can be stacked against the back wall or side walls. Large units cannot be handled in this way. The traditional method and the simplest one mechanically is to haul them up out of sight with ropes or wire cable working through sheaves attached to a slotted metal gridiron overhead. But a large proportion of the audience (see figs. 2 and 3) is not only looking at the stage but up into it. Therefore the gridiron must be high enough to haul the large units of scenery out of sight when not in use.

If it cannot be hoisted out of sight, there is no sense in hoisting it at all. Fifty-five feet above the stage floor (with head room above it to the roof) is a minimum height for the gridiron. Every 5 feet that can be added increases the efficiency of the stage in an almost geometrical ratio. Sixty to sixty-five feet is eventually worth every dollar of added building cost. Seventy feet is a maximum. Eighty feet would be the gridiron height in a well-planned professional theater. The counterweight system with cable lines for hoisting and lowering scenery is standard. It is placed against either side wall, is worked from the floor and takes no more than 4 feet in depth of stage space. For access to the gridiron a circular stairway is much less hazardous than the usual iron ladder.

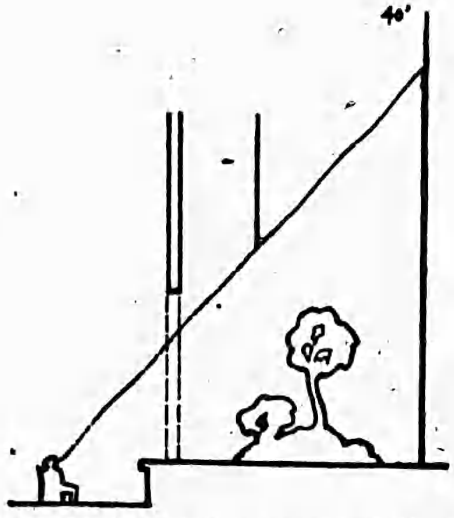


FIGURE 2.—Diagram showing relation of gridiron and hanging space to stage house and to sight lines.

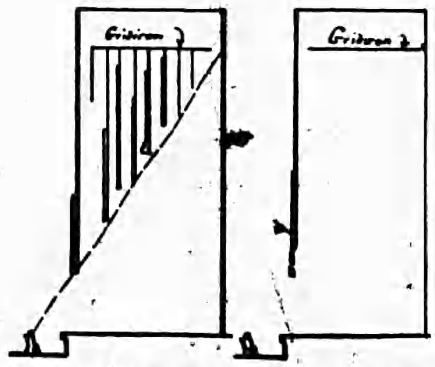


FIGURE 3.—Diagram showing relation of gridiron and hanging space to stage house and to sight lines.

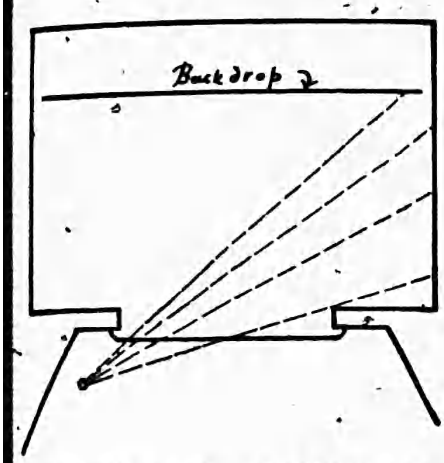


FIGURE 4.—Diagram showing sight lines on open-air set without cyclorama.

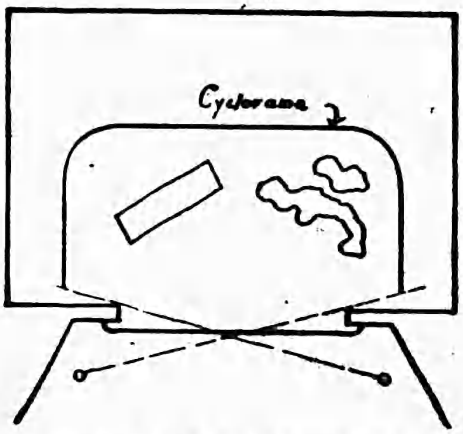


FIGURE 5.—Diagram of cyclorama with inadequate off-stage space and insufficient stacking space.

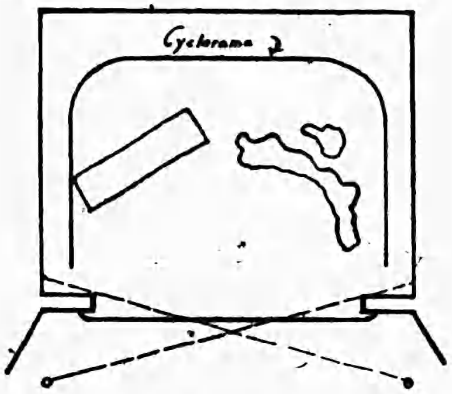


FIGURE 6.—Diagram of cyclorama used on a stage with adequate depth and off-stage space.

Where conditions absolutely prevent a stage house of sufficient height being built (although an able architect should be capable of organizing his building plan so as to avoid this contingency) the alternate method is to shift scenery off stage by sliding it out of sight right and left in wagons or trucks mounted on ball-bearing casters. For this system to work well and carry settings off out of lateral side lines, the working space of a stage at stage level has to be greatly extended to the width of the proscenium on either side to provide for at least two such wagon stages. In depths these wagons need to be 14 feet to provide 12 feet acting area, and when set with scenery 12 feet or 14 feet high, and filled with furniture, etc., are extremely heavy and cumbersome to handle, and are almost unmanageable unless guided by fiber tracks, which in turn break up the surface of the stage when the wagon stages are not in use. In addition stacking and setting space has to be provided off stage for each wagon, so that there often is no considerable saving in building cube involved. The traditional gridiron is on the whole more compact and practical.

The other major problem in planning a stage is the background for open-air scenes. (See figs. 4, 5, and 6). A flat backdrop is insufficient due to lateral sight lines. A third of the audience looks into the stage at an angle so that it can see the side walls of the theater. For that reason an essential piece of stage equipment is the cyclorama—a cylindrical piece of canvas not less than 30 feet high stretched between pipe battens curved at the upstage corners and continuing on up- and down-stage arms. Canvas is, however, an unsatisfactory material as, with changes in humidity, it invariably wrinkles, which no amount of "trimming," even by veteran stage carpenters, can smooth out. A far more satisfactory substitute is cotton velour (which was successfully used in *Amphitryon, 38*) finely sprayed in various tones of blue. The surface takes light perfectly, gives great depth and brilliance of color and, due to its greater weight, hangs without wrinkling and pulling. When cotton velour is used the up- and down-stage arms can be travellers and the sides of the cyclorama drawn upstage for scene shifts. The initial cost is about one-third greater than a cyclorama made of canvas, and only an expert in a scenic studio can paint such a velour cyclorama properly. But the added investment will more than repay itself in terms of efficient handling of the stage and effective lighting.

A third alternative is the plaster cyclorama dome. Its surface is best for the diffusion of light, and gives the greatest illusion of depth and space. Where a sufficiently high stage house cannot be built, it may provide an effective substitute, particularly in small theaters. Its disadvantages are that its rigidity greatly decreases the flexibility of the stage, and unless built on a large and hence expensive scale, greatly limits the variety of scenic methods that can be employed. Care must be taken in planning such a dome to carry it far enough off stage to carry beyond lateral sight lines and also to leave ample space for actors' entrances and the setting and striking of properties. Despite the number of limitations it imposes, a plaster cyclorama dome is infinitely preferable to a useless gridiron 30 feet or 40 feet high. In any case, its design, including the specification and placing of the lighting apparatus needed, is a matter for expert advice. To this should be added the advice of an acoustic engineer as any domed shape is liable to create the maximum distortion in the projection of both music and speech, including echoes and dead pockets. The relation of its contours to those of the auditorium requires careful study.

THE LIGHTING LAY-OUT

In addition to space, light is the prime requisite of a stage. The modern stage structurally is a black hole; it can be transfigured only by electric light, the only genuinely new instrument that modern

technic has added to dramatic presentation. Enough electric light, flexibly and sensitively controlled, is an essential part of any theater's equipment, however small. The clumsy switchboards with manually controlled dimmers (or rheostats) are almost obsolete, and are already being replaced by dimmers of a variable capacity, handling from 10 to 4,000 watts without a flicker, stacked anywhere off stage or underneath the stage, operated by remote, electrically timed, controls. A control panel for as many as 37 dimmer circuits is no more than 23 inches wide, 32½ inches high, and 6 inches deep. In addition, the control wiring can be extended to a floor pocket anywhere in the auditorium floor, and the lighting of a production done from in front of the curtain as well as from backstage. The minimum cost of such an installation is at present approximately $250 per dimmer circuit, but the number of circuits can be reduced by the addition of a transfer panel, a variation of the metering panel used in office buildings, whereby any unit of lighting equipment can be disconnected from a dimmer without touching the unit itself, shifting a cable or a pin connector, the dimmer automatically being transferred to control another unit of equipment. Spot lamps have been immensely improved in efficiency so that a 500-watt spotlight of recent design can replace a 1,000-watt lamp of the older type, but they have at the same time been made more compact and in all their mechanical adjustments easier for amateurs to handle. The current list price of the spotlights that a modern school auditorium should use runs from approximately $30 to $50 apiece. Cyclorama lighting equipment (at approximately $8 to $15, list, per running foot) is now available with the light primaries, red, blue, and green glass filters spectroscopically accurate, which, with properly proportioned wattages and correct dimmer control can, on a cyclorama or dome run through the entire spectrum, and achieve an almost white light as well as a pure yellow tint, in fact simulate the entire cycle of day "from morn to noon, from noon to dewy eve." The mixing of colored light is as much an art as the mixing of colors, as definite a means of aesthetic expression and aesthetic training as painting; and the manipulation of spotlighting is comparable to the mastery of chiaroscuro in a painter's training. If a school theater is to be a source of aesthetic training and a rounded aesthetic experience for students who participate in it, light is one of the essential mediums they must learn to use and to master. To do this it must be technically complete and correctly installed.

This is a job for a theater consultant or theater engineer who should be retained by school-building committees not only for the special problem of lighting the stage but for all the other details of its equipment and its general dimensions and lay-out as well. Every theater presents a special problem in the planning of its lighting equipment

and its switchboard dimmer control. But in general the following equipment is a desideratum: 3-color cyclorama borders overhead and 3-color cyclorama foots from below, the latter on casters and wheeled off-stage when not needed; two or four 2-gang or 4-gang stage pockets, for off-stage spotlights or floodlights (sunlight or moonlight through windows, behind doorways, etc., to light either the setting or the actors); for the playing area proper, "tormentor" lights, i. e., upright metal stanchions directly back of the proscenium to which are clamped, and from which are angled, 8 to 10 spotlamps from each side, of 250 to 500 watts each. From an overhead pipe directly back of the curtain 6 to 10 spotlights of similar wattages, but of less concentrated focus, one to two 5-foot or 6-foot sections of three-color border lights for general color tone. As footlights (which should be of the disappearing type) at best are a necessary evil and when used to their full capacity invariably overlight the setting and cast distracting shadows of the players, they should always be supplemented by a series of 500- to 1,000-watt spots, 6 or 12, depending on the size of the auditorium, placed in the ceiling so that they can be projected at an angle of approximately 30° to hit actor's head high from the forestage to a distance 4 feet to 6 feet back of the curtain line.

The rule in planning any school theater should be to provide space, the right space, even though it cannot be equipped immediately, and to plan a complete lighting equipment although only a fraction of it can be immediately installed. The wiring conduits should be laid when the building is erected, and the outlets provided. Wires can always be drawn later, lamps added one by one, dimmers added in series, switchboards enlarged. But to install wiring after a theater is once built is the messiest and most costly kind of reconstruction job. A stage with ample space can always be equipped. No amount of equipment can be added later to make a cramped stage workable. Our present methods of building and equipping school theaters are too often reminiscent of that mythical robber Procrustus who tied his victims to a bed, and if they proved too large for it chopped off their legs to the requisite size.

In planning school theaters it is well to remember also that they can serve not only as a cultural center for the school but for the entire adult community in the neighborhood, the district, or the region that the school serves. The school theater can be used by night as well as by day for lectures, concerts, choruses, noncommercial films not featured at local movie palaces, and for occasional performances by professional companies on tour. Its lobbies can be made to serve as well for travelling exhibitions. The school theater well-planned and well-equipped can be made a vital center of community life.

APPENDIX

TABLE I.—*Dimensions of audience floor in 30 auditoriums in elementary-school buildings*

School and State	Dimensions of audience floor of auditorium	Capacity of school on basis of 40 pupils per room	Capacity of auditorium
1	2	3	4
	Feet		
No. 4 (New Jersey)	70 x 52	1,320	607
No. 8 (Kansas)	62 x 46	360	475
No. 1 (Illinois)	60¼ x77¾	1,040	781
No. 2 (Ohio)	60 x 70	1,320	700
No. 3 (New York)	59 x 69	1,280	679
No. 14 (New York)	53 x 50	800	442
No. 7 (New Jersey)	50 x 62	2,040	517
No. 12 (Connecticut)	50 x 56	760	467
No. 6 (Pennsylvania)	48 x 70	1,200	560
No. 11 (Arkansas)	48 x 59	640	472
No. 21 (Wisconsin)	48 x 42	440	336
No. 5 (North Carolina)	45 x 75	400	563
No. 9 (Oregon)	45 x 63	1,240	473
No. 15 (California)	44 x 60	640	440
No. 16 (Missouri)	43 x 57	800	409
No. 13 (Missouri)	42½ x 63	480	445
No. 19 (Arkansas)	41 x 52	560	355
No. 10 (Texas)	40 x 71	1,000	473
No. 17 (Washington)	40 x 60	800	400
No. 12 (Alabama)	40 x 45	1,440	300
No. 23 (Michigan)	40 x 42	1,320	280
No. 34 (Alabama)	40 x 42	520	280
No. 25 (Pennsylvania)	40 x 40	680	267
No. 18 (Minnesota)	36 x 59	440	360
No. 20 (Missouri)	35 x 58	680	338
No. 27 (Michigan)	35 x 38	520	222
No. 26 (California)	32 x 74	960	228
No. 28 (Indiana)	30½ x 38	1,160	193
No. 29 (Pennsylvania)	25 x 37½	560	156
No. 30 (Iowa)	28 x 38¼	560	140

TABLE II.—*Depth of stage in auditoriums in 30 elementary-school buildings*

School and State:	Depth of stage Ft.	In.
No. 2 (Ohio)	27	
No. 3 (New York)	25	
No. 26 (California)	18	
No. 21 (Wisconsin)	18	
No. 1 (Illinois)	17	
No. 13 (Missouri)	17	
No. 14 (New York)	17	
No. 7 (New Jersey)	17	
No. 19 (Arkansas)	16	
No. 25 (Pennsylvania)	16	
No. 15 (California)	16	
No. 22 (Alabama)	15	
No. 9 (Oregon)	15	
No. 5 (North Carolina)	15	
No. 16 (Missouri)	14	
No. 4 (New Jersey)	14	
No. 12 (Connecticut)	14	
No. 17 (Washington)	14	
No. 30 (Iowa)	13	8½
No. 11 (Arkansas)	13	6
No. 10 (Texas)	13	
No. 24 (Alabama)	13	
No. 6 (Pennsylvania)	13	
No. 18 (Minnesota)	13	
No. 20 (Missouri)	12	6
No. 23 (Michigan)	11	6
No. 27 (Michigan)	11	
No. 8 (Kansas)	10	
No. 28 (Indiana)	9	
No. 29 (Pennsylvania)	6	2

TABLE III.—*Width of proscenium arch in 30 auditoriums in 30 elementary-school buildings*

School and State	Width of proscenium arch	Width of proscenium arch—		
		More than 30 feet	Less than 24 feet	30 feet or less but not less than 24 feet
1	2	3	4	5
No. 3 (New York)	40	X		
No. 2 (Ohio)	35	X		
No. 14 (New York)	35	X		
No. 1 (Illinois)	35	X		
No. 7 (New Jersey)	32	X		
No. 4 (New Jersey)	30	X		
No. 12 (Connecticut)	29			X
No. 15 (California)	28			X
No. 24 (Alabama)	28			X
No. 19 (Arkansas)	28			X
No. 25 (Pennsylvania)	28			X
No. 18 (Minnesota)	26			X
No. 13 (Missouri)	25			X
No. 23 (Michigan)	24			X
No. 16 (Missouri)	24			X
No. 6 (Pennsylvania)	24			X
No. 21 (Wisconsin)	24			X
No. 5 (North Carolina)	24			X
No. 22 (Alabama)	23		X	
No. 27 (Michigan)	23		X	
No. 11 (Arkansas)	22		X	
No. 9 (Oregon)	22		X	
No. 17 (Washington)	22		X	
No. 8 (Kansas)	22		X	
No. 20 (Missouri)	21		X	
No. 10 (Texas)	20		X	
No. 26 (California)	20		X	
No. 28 (Indiana)	20		X	
No. 29 (Pennsylvania)	18		X	
No. 30 (Iowa)	18		X	
Total		6	12	12

TABLE IV.—*Space off stage compared with width of proscenium arch*

School and State	Width of proscenium arch	Space off stage
1	2	3
	Feet	*Ft. In.*
(a) *Auditorium stages in which space off stage was more than ½ the width of the proscenium arch*		
No. 15 (California)	28	16
No. 13 (Missouri)	25	17
No. 5 (North Carolina)	24	21
No. 23 (Michigan)	24	16
No. 20 (Missouri)	21	14
No. 28 (Indiana)	20	10 5
(b) *Auditorium stages in which space off stage was less than ½ but more than ¼ the width of the proscenium arch*		
No. 3 (New York)	40	19
No. 14 (New York)	35	10
No. 1 (Illinois)	35	12
No. 19 (Arkansas)	28	13
No. 25 (Pennsylvania)	28	12
No. 21 (Wisconsin)	24	7
No. 22 (Alabama)	23	7
No. 9 (Oregon)	22	9
No. 17 (Washington)	22	9
No. 26 (California)	20	8
(c) *Auditorium stages in which space off stage was less than ¼ the width of the proscenium arch*		
No. 2 (Ohio)	35	6 6
No. 4 (New Jersey)	30	7
No. 12 (Connecticut)	29	2 6
No. 18 (Minnesota)	26	5
No. 16 (Missouri)	24	2
No. 6 (Pennsylvania)	24	2
No. 11 (Arkansas)	22	2
No. 10 (Texas)	20	3
No. 30 (Iowa)	18	4
No. 29 (Pennsylvania)	18	3
(d) *Auditorium stages in which there was no space off stage*		
No. 7 (New Jersey)	32	----------
No. 24 (Alabama)	28	----------
No. 27 (Michigan)	23	----------
No. 8 (Kansas)	22	----------