DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1921, No. 13

The Housing and Equipment of Kindergartens

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., September 17, 1920.

SIR: In the last 8 or 10 years there has been unusual progress in the establishment of kindergartens in most of our cities and States, but still the kindergarten is a phase of school work less known than the work of the grades in the elementary schools. Many school officers and school architects lack information as to the character of rooms and buildings best suited for the use of the kindergarten, and many of the kindergartners have need for more complete information in regard to modern kindergarten equipment. To supply these needs I have had prepared a manuscript on the Housing and Equipment of Kindergartens, in which descriptions and illustrations are given of some kindergarten rooms and buildings of the best types and lists of the equipment used in some of the best-known kindergartens. I am transmitting the manuscript for publication as a bulletin of the Bureau of Education.

Respectfully submitted,

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

THE HOUSING AND EQUIPMENT OF KINDERGARTENS.

[This bulletin was prepared with the cooperation of a committee of the International Kindergarten Union, Miss Grace L. Brown being chairman, and with the help of Miss Grace M. Janney.]

PART I.

The kindergartner who is responsible for the housing of a kindergarten may have one of three problems to solve. She may be given a room originally built for some other purpose, in which case her problem is that of adaptation. She may be consulted as to the features she would like incorporated in a large school building where she must accept the limitations necessary to the architectural unity of the building. Or she may have the pleasure and the responsibility of planning a building where only the needs of the younger children in a school are to be considered.

THE KINDERGARTEN IN THE LARGE SCHOOL.

If the kindergarten is to be in especially planned rooms in a large school, the rooms should have the morning sun and be large enough to admit of the free playing of varied and active games. There should also be a space where construction work may be kept for a period of days if necessary, until the project of which it is a part shall be completed. Dr. Dresslar, in his book on "American Schoolhouses," gives from 24 to 25 feet wide by from 32 to 33 feet long and from 12½ to 13 feet high as the ideal size for a schoolroom. He states that the width of a schoolroom, where unilateral lighting is used, should never exceed twice the distance from the floor to the top of the windows. In the kindergarten, where the position of the furniture can be easily changed to suit the lighting conditions, and where a great deal of room is needed for games and rhythmic exercises, one room of the size he gives is not sufficient for a kindergarten of 50 children.

In the Marshall School, Dorchester, Mass., the kindergarten occupies three rooms. One, the play room, is 35 feet by 35 feet 8 inches and has an entrance into the school yard. At one end are two classrooms 17 feet 9 inches by 19 feet 9 inches each, which open into the large room by wide folding doors.

The kindergarten at the John D. Philbrick School, Boston, Mass., has a room 40 feet long by 20 feet 6 inches wide, which can be divided into two rooms for the work period by folding doors. Miss Aborn, the supervisor of kindergartens in Boston, suggests that 5 feet added to the width of the room would be a great improvement.

The report of the First District California Congress of Mothers and Parent-Teacher Associations gives 35 feet by 55 feet or 40 feet by 60 feet with a ceiling from 10 to 12 feet high as the proper size for a one-room kindergarten.

No room should be used even for a playroom which is more than 2 feet below ground.

THE LOCATION.

If a house is to be built for the use of the kindergarten, its location is important. There should be plenty of air and sunshine and restful quiet. There should be ample ground for gardens and the keeping of pets, which might include a mother hen and her chicks and a mother rabbit and her babies.

Dr. Dresslar, in making an especial plea for the building of schoolhouses in quiet places, says: "Most children who live in the larger cities are bathed in a constant turmoil of noise both day and night, and as a result their nervous systems are levied upon incessantly to no purpose at all."

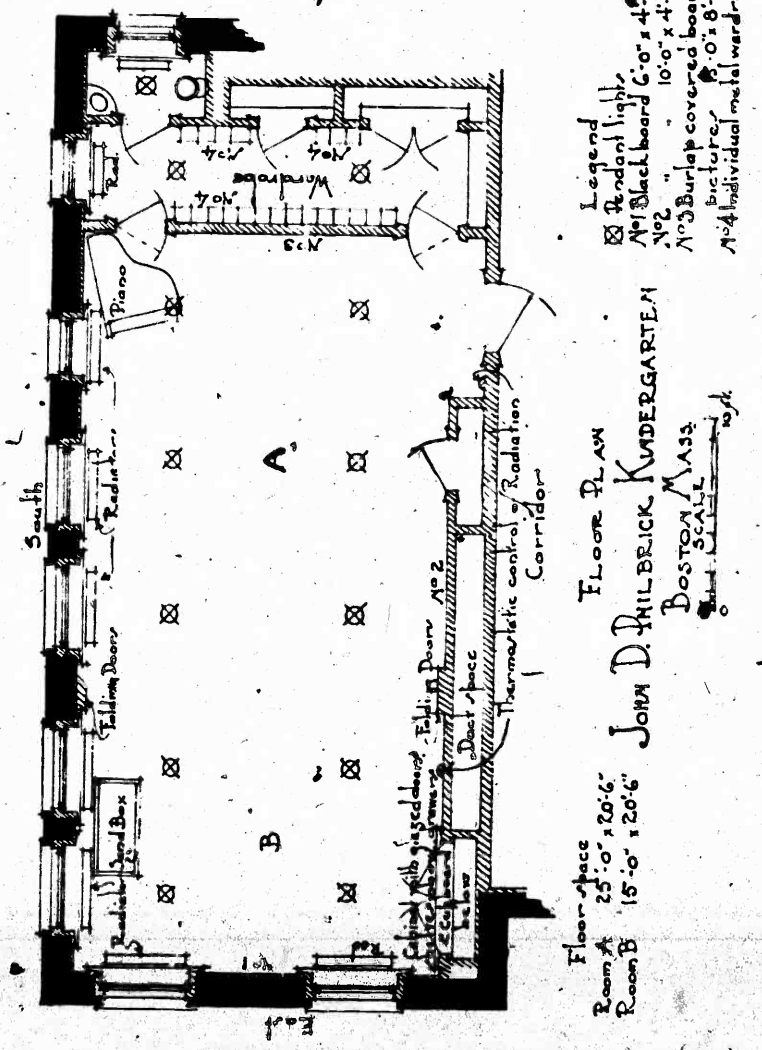
He advocates the building of schoolhouses in quiet places and furnishing the children with free transportation, as is done by means of school vans in rural districts.

THE HOUSE PLAN.

If the kindergarten building is to be planned for use in a northern climate, the kindergarten at Wellesley College is well worth studying. The location is ideal. The building has a simple and dignified exterior and a charming interior. The kindergarten rooms are at the back and long windows open directly into the garden. The one criticism that might be made of the Wellesley school is that the basement playrooms are too far underground.

Whatever the climate, all possible out-of-door work should be encouraged. Of course, the greatest possibilities for regular outdoor kindergartens will be found in the South and Southwest. Edward Hyatt, formerly superintendent of public instruction for California, has some very interesting plans, pictures, and descriptions of open-air schools and one-story schools built in the mission style of architecture, in a report on "School Architecture in California." The picture on page 61 of this book shows an attractive open-air classroom at San Bernardino. The window arrangement makes it possible to have an open-air classroom in fair weather or to have protection in foul weather.

The First District California Congress of Mothers and Parent-Teacher Associations have issued from Los Angeles a very compre-



hensive report on the proper housing and equipment of kindergartens. The committee states that it will forward, on request, plans of the

different types of buildings described. Their report is well balanced and full of valuable suggestions.

Whenever possible the kindergarten building should be of fireproof materials. In the South and Southwest, the mission style of architecture, built with thick, solid walls of concrete and red earthen tiles, makes an attractive building. The Francis W. Parker School, San Diego, Calif., is constructed of frame, finished on the outside with cream stucco and red mission tiles and on the inside with tan walls.

HEIGHT OF CEILINGS.

It should be remembered that rooms with high ceilings are more expensive to build, harder to heat, and are apt to have troublesome echoes. Ceilings should, however, be high enough to admit of the proper window area for the lighting of the rooms. For that purpose 12½ feet from ceiling to floor is usually sufficient.

THE FLOORS.

In fireproof buildings a single floor is sufficient, but in other buildings great care should be taken to insist on having double floors, with a layer between them of some material impervious to air and deadening to sound. Tarred paper is good to keep out the air, and an asbestos board or quilt will deaden sound.

LIGHT.

The amount of light necessary for the schoolroom varies with the part of the country in which it is situated. Dr. Dresslar states that in northern countries, with short days, windows equal to one-fourth of the floor area are often required, while in the sunny parts of the Southwest one-sixth is sufficient.

The windows in the kindergarten rooms should be low. They should be placed as close together as safety of construction will permit. If iron mullions are used they will make more glass surface possible with stronger construction. The window arrangement used in Public School No. 37, plate 154, in Dr. Dresslar's "American Schoolhouses," is very pleasing.

HEATING.

A most important place should be given the heating system of the school building. If the heating apparatus must be in the kindergarten room, a jacketed stove correctly placed is the most effective means of warming the room. If a furnace for the whole building is to be used, experts on heating systems must be consulted.

Certain points to keep in mind are that all hot-air furnaces should be supplied with some means of moistening the air before it is intro-

KINDERGARTEN BUILDING, WELLESLEY COLLEGE.

duced into the schoolroom, and that a system of thermostats should regulate the heat in the rooms automatically.

Dr. Dresslar says that children of primary age need 2,000 cubic feet of air per pupil each hour. He calculates that, although each child only breathes 18 cubic feet, the poisons of the air exhaled will vitiate more than 100 times as much. Because so much fresh air is required in a schoolroom, a furnace which is satisfactory in the ordinary home will not be satisfactory for a school. Provision must be made in school heating to install a system of ducts for fresh air and foul air and a motive power to force in the fresh, warm air and force out the impure, vitiated air.

Some arrangement should be made, in planning for such a system, to provide for foot warmers to be used in cold weather.

SCHOOL BATHS.

In progressive school systems, school baths have been tried and found to be a valuable asset. In some places it is required that each pupil take one bath a week at school or bring a written statement from home that he has had a bath. Physiologists and psychologists have long taught the value of cleanliness to bodily and mental strength. This means of minimizing sickness, restlessness, and inattention is too often neglected in school plans.

THE WALLS OF THE ROOMS.

Science has taught us that all bright colors lose their intensity when seen at a distance; the intervening atmosphere grays them. Therefore, to make the walls of a room appear to recede and give an air of spaciousness to the room, the color of the walls should be neutral rather than intense. In sunny rooms gray-green is good. In dark rooms light brown and buff tend to make the room seem lighter, while the walls retain their value as a background.

The color chosen should be darkest near the floor and lighter as it nears the ceiling. For instance, with woodwork from the floor to the line of the blackboard and with gray-green side walls, there should be a ceiling of very light gray-green or cream, which should be dropped to the picture molding.

If the color of the woodwork is in violent contrast to the color of the walls, its lines will stand out so prominently that the room will seem much smaller. The woodwork should harmonize with the color of the walls, and it should be dull and unobtrusive in finish.

In choosing the tints for walls and woodwork consider the rooms in their most unfavorable circumstance, so that there will be no temptation to select colors which are too dark.

CURTAINS.

Window curtains should be of plain, thin material, and should be hung straight to conform with the structural lines of the room. They should be used simply to soften the lines of the window frames and should not be allowed to obstruct the entrance of light and air.

SHADES.

Window shades of a neutral tint, harmonizing with the color scheme of the rooms, should be used. There should be two separate shades for each window, both fastened about two-fifths of the height of the window. The upper shade should pull down and the lower shade should pull up. Special brackets for these shades can be obtained. The shades should extend over each side of the window frame to keep out the streaks of sunlight that are often troublesome if the shades are too narrow.

PICTURES.

The pictures to be chosen for the kindergarten room should not only be selected for their artistic merit, but also for their value as fine interpretations of the world and its activities from the child's standpoint. In the kindergarten pictures are used in relation to the development of the subject matter of the program. They fall into three general groups, namely, those with a real art value, which should have a more permanent place on the walls of the room; those which illustrate specific subjects accurately and may be temporarily displayed; and those which are suitable for the making of scrap books. A valuable aid in the selection of kindergarten pictures will be found in the "Report of the Graphic Arts Committee," contained in the "Report of the Twenty-fourth Annual Meeting of the International Kindergarten Union," at Boston, Mass.

All the pictures should be framed simply. Due consideration should be given to the picture itself; to the wall upon which it is to hang, and to the other pictures in the room.

Pictures should be hung perfectly flat against the wall and low enough for the children to see. If the rules of the school decree that no nail holes may be made in the walls, each picture should be hung by two parallel cords of the color of the walls and as unobtrusive as possible.

Thought should be given to the balance of the room as a whole in the grouping of pictures and placing of furniture.

BULLETIN BOARDS.

Bulletin boards should be provided for the exhibition of children's work and the pictures and other objects which illustrate group interests but do not contain sufficient art value to become a perma-

nent part of the room. Satisfactory bulletin boards can be made by having large pieces of cork composition framed with a flat wood frame. The shape and size of such bulletin boards will, of course, depend upon the proportions of the spaces on the walls of each individual room.

VASES FOR FLOWERS.

The vases for flowers should be simple in material, beautiful in line, and restrained in color. Japanese flower holders will be found very useful in the effective arrangements of bouquets.

THE AQUARIUM.

The aquarium should be as large and as strongly constructed as is possible. If frogs are to live there as well as the usual fish and snails, a wire netting should be provided to fit over the top of the aquarium.

The report of the "Program and Details of Construction and Equipment for Grade Schools," prepared by C. L. Woolridge, superintendent of buildings in the public schools of Pittsburgh, Pa. (published in 1914), contains the specifications for the making of a practical aquarium. The tank is 2 feet long by 12 inches wide by 12 inches high. The sides are made of one-fourth-inch plate glass channeled into slate at the bottom and finished with lead corners and coping. The aquarium is built on a table-like stand 1 foot 6 inches high.

CLAY JARS.

If a large amount of clay is kept, the best place for it is the basement, but a quantity sufficient for at least one day's use should be kept in a large crock near enough for the children to reach easily so that they may help themselves.

BLACKBOARDS.

The blackboards should be low, about 2 feet from the floor. As blackboards absorb a great deal of light, only enough should be left in the room to meet the actual needs of the kindergarten. A dark green board is often preferable to black. Blackboards should never be placed on the same side of the room as the windows.

CUPBOARDS.

Cupboard space should be carefully planned. The cupboards should be low enough for the children to reach so that they may get their own materials and keep the shelves in order. It would be valuable for each child to have a compartment in such cupboards where he could keep his own working materials and be held responsible for both the condition of his materials and his compartment.

These cupboards can be built in the rooms. If they are low and finished at the top with a broad shelf, they can be made a very attractive and decorative feature of the room. Wooden doors will protect the materials on the shelves. The broad shelf will make an excellent place for the aquarium, jars of flowers, and the various objects of interest belonging in kindergarten rooms.

If compartments for use by individual children are to be planned, care should be taken to make each space large enough to be of practical use. They should at least be long enough to hold a piece of construction paper and high enough to accommodate small pieces of unfinished construction work. Such spaces should be not less than 9 inches high by 12 inches deep by 15 inches long.

CHESTS.

Chests with hinged covers should be provided for the storing of floor blocks and miscellaneous construction materials. Such chests can serve as seats if properly placed.

Miss Mary Pennell, of Kansas City, Mo., gives the following proportions for the building of such a chest: Fifty-two inches long by 20 inches high by 20 inches wide. The height of 20 inches is to include the height of the casters.

FLOOR COVERING.

A floor covering of a heavy cork composition, such as is used in the kindergarten at Wellesley College, or the cork tiles used at Downers Grove, Ill., are ideal ones. They are easily cleaned, deaden sound, and soften tumbles.

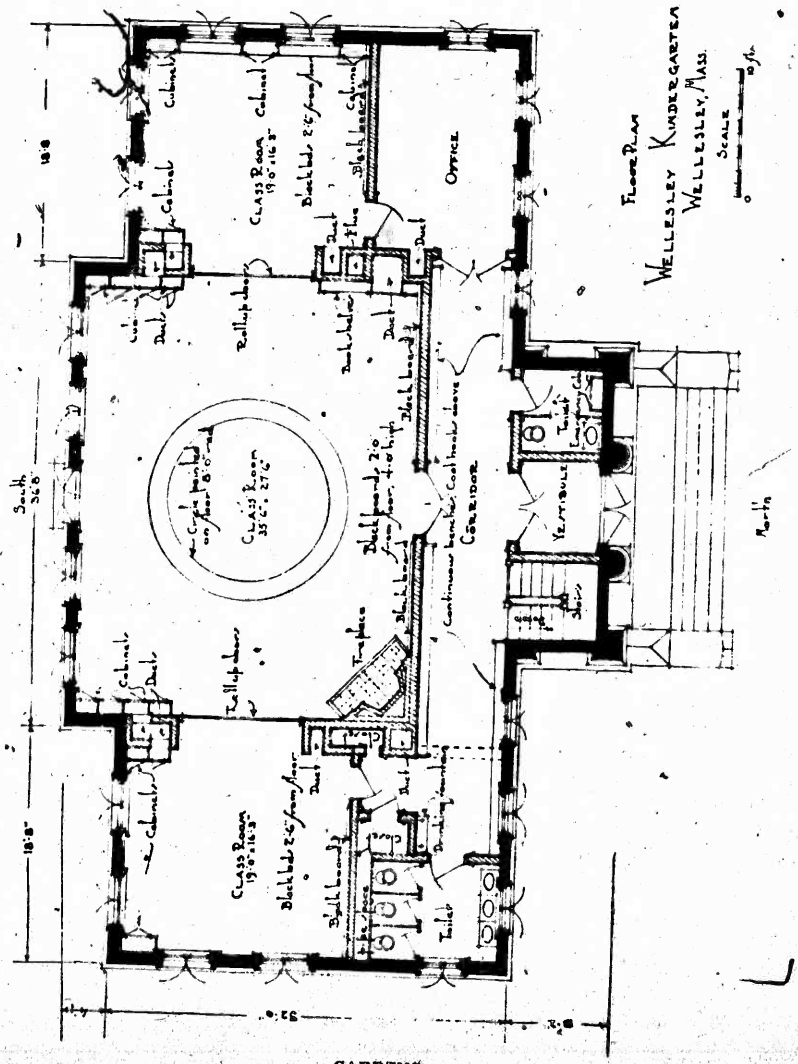
TOILET ROOMS.

A most important subject for the consideration of the kindergarten is that of toilet facilities for the children. Kindergarten children should have access to drinking fountains, stationary wash basins, and toilet seats of the proper size so near their rooms as to be under the constant supervision of the teachers. One toilet seat for boys and one for girls should be provided. While the toilet rooms should be airy, warm, and well lighted, the plan for their ventilation must be separate from that of the schoolroom. The foul air from toilet rooms should never be allowed to enter a schoolroom. In new buildings these requirements are almost always included in the architect's plans, and usually in old buildings a persistent seeker will find a place which can be converted, more or less satisfactorily, to this use. A plentiful supply of liquid soap and paper towels should be furnished.

CLOAKROOM.

Another important point is the planning of the cloakroom space. Few people realize how great is the possibility of the spread of con-

tagion where cloakrooms are crowded and badly ventilated. The ideal plan calls for individual, ventilated compartments, but if this is impossible, care should be taken to have the room well ventilated and the low hooks placed as far apart as is possible.



GARDENS.

Some plan for children's gardens should be made. If possible, each child should have his own plot in the school garden or a near-by vacant lot. If that is impossible, large shallow pans of zinc could be made to fit the window sills or shelves in front of the windows. Each child could then have his own flower pot in which to grow his own

plant. The growing plants could be transferred to a house garden or the school window box as soon as they outgrow the pot. More seeds could be planted so that in time one pot could furnish for the child quite a varied garden experience.

Roof gardens, furnished with large boxes, can sometimes be planned in cities where lack of space makes a real garden impossible.

OUTDOOR PLAYGROUND.

There should be an outdoor playground in connection with each kindergarten. The equipment list of the report of the First District California Congress of Mothers and Parent-Teacher Associations includes an adequate list of playground apparatus and an excellent detailed description of it.

PART II.

The modification in kindergarten practice which has taken place in recent years is illustrated by a statement in the Bureau of Education bulletin entitled "The Kindergarten Curriculum" (Bulletin, 1919, No. 16), which says:

"Educators are to-day seeking to develop in children initiative and reflective thinking. The first prerequisite of productive thinking is a problem which seems to the child real and worthy of solution."

The foregoing conception of education calls for changes in some of the traditional kindergarten materials and for the addition of other supplementary materials. In addition to this educational standard for the measurement of the worth of working materials, there must be added the health standard which rejects as harmful those materials which are so small and exacting as to overstrain nerves and small muscles.

In June, 1919, questionnaires were sent to groups of experienced teachers asking for information as to their present equipment and the kind of equipment they desired for their kindergartens. A summary made from these questionnaires shows that certain tendencies are widespread. Of the number now having small blocks in their equipment, less than 10 per cent would include them in an equipment list for a modern kindergarten. On the other hand, the desire for some form of large floor blocks and enlarged fifth and sixth gifts is practically universal. A very small percentage of teachers list such materials as small tablets, small sticks, small rings, paper weaving, parquetry, straws, and chain papers, while many teachers select such materials as large sticks, woodworking materials, industrial sewing, and weaving. The desire for toys and outdoor playground apparatus is practically universal.

The kindergarten equipment lists which follow are merely suggestive, and it is expected that selection will be made according to the special needs in various localities.

FURNITURE.

Tables.—Tables made by manufacturers of kindergarten materials are expensive. It would be much cheaper and quite as satisfactory to have tables made by local carpenters or to adopt ordinary kitchen tables by shortening the legs. The modern development of kindergarten work results in the division of the kindergarten into smaller and more spontaneous groups and in the use of small tables seating two or three children. It also entirely eliminates the need for the tables checked with 1-inch squares. The First District California Congress of Mothers and Parent-Teacher Associations describe such a carpenter-made table in a report published by them in 1917. The proportions they use are 20 by 36 inches for the top and 20 inches high for use with chairs 12 inches high, or 18 inches high for use with chairs 10 inches high. A similarly made table with a square top 30 by 30 inches will be found to be satisfactory. One such table should be allowed for two children.

Chairs.—The chairs for the children should be of a type which meets the requirements set by hygienic experts. They should be provided in two sizes—10 and 12 inches high, and should be finished with rubber tips.

Larger chairs should be included in the equipment for teachers and visitors.

Sand table.—A practical sand table can also be made by a local carpenter. A convenient size for the tray to hold the sand is 3 feet by 5 feet and 4 inches deep. This tray should be lined with zinc and fastened to four strong legs finished with castors. The whole structure should be not more than 24 inches from the floor to the top of the tray.

Musical instruments.—A kindergarten equipment should include a piano or phonograph or both. If only one instrument can be furnished, the piano is better, because it can be quickly adapted to meet the musical needs of the child. While there are distinct limitations in the adaptation of the phonograph to kindergarten uses, excellent records for music appreciation, marches, and rhythms can be obtained, as well as a few kindergarten songs and games. The phonograph will be of great value in the school where the teacher is without musical ability, and in the school where one teacher is required to be musician and director at the same time.

Toy musical instruments, such as drums, cymbals, tambourines, bells, triangles, etc., should be provided for the use of the children. Much valuable rhythm and tone work can be done with such a collection.

Music books.—The Bureau of Education bulletin entitled "The Kindergarten Curriculum" (Bulletin, 1919, No. 16), prepared by a

committee of the International Kindergarten Union, contains a chapter on "Music in the Kindergarten," with a comprehensive list of music books and songs.

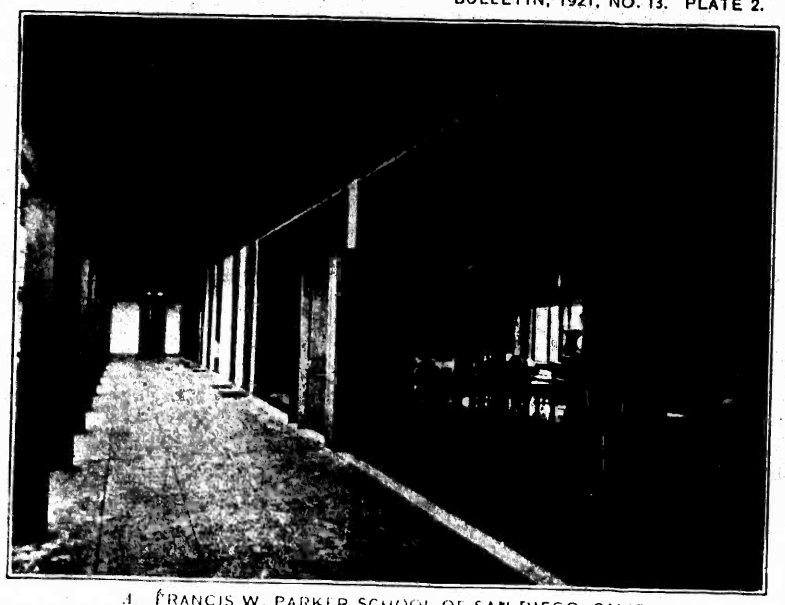
DIFFERENT TYPES OF LISTS.

Three types of lists are given in this bulletin, which are intended to meet the following needs: (1) Where the expenditure must be limited; (2) where the expenditure will allow for an adequate equipment; (3) where the work is experimental in character, and a large variety of material is called for.

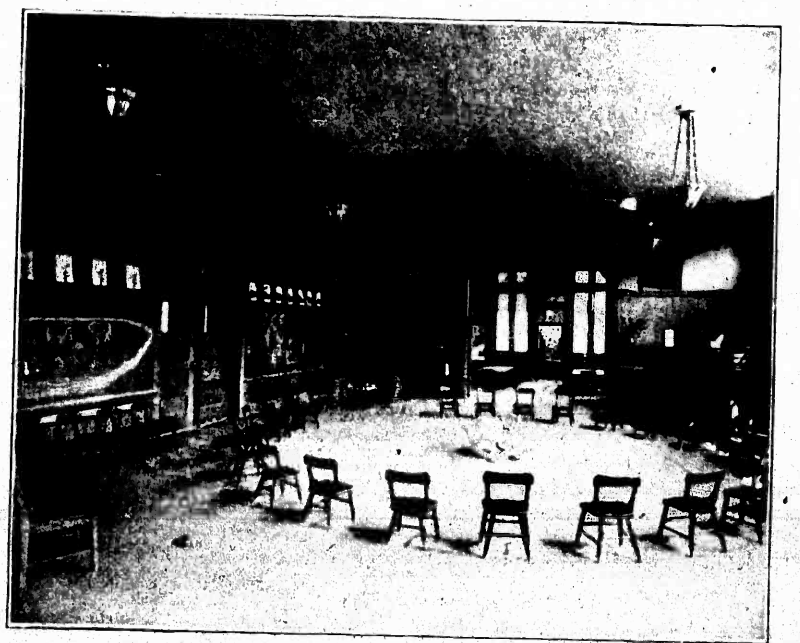
Even in a minimum equipment list the selection of materials will vary with conditions. In a kindergarten that is located in the town or country, or in a city kindergarten that is near a large park, the children will be able to spend a part of every morning out of doors, and will also have an opportunity to collect nature material. These experiences are more valuable than working or playing with perfected materials. But when a kindergarten is located in a crowded city, and nature experiences are more limited, it is necessary to provide a more complete indoor equipment. An adequate equipment for the right development of children from 4 to 6 years of age should be the aim, and not economy at the expense of the younger children in the school system. It is possible to practice economy in such a list as "A Minimum Equipment," and at the same time provide opportunity for the right development of the children. The materials that are absolutely essential for the right kind of kindergarten work are: Clay and sand, building blocks, paper, paste, scissors, and colored crayons. Permanent material should be of the best quality. For example, the blocks should be cut accurately, and, if possible, be of hard wood. In equipping a kindergarten it is better to begin with small quantities of the best quality of permanent material and to build up the equipment from year to year. Cheap material that will have to be renewed or that will not enable children to secure the right kind of results in their work, such as uneven blocks, is poor economy. Cheap scissors are a waste of money.

But economy may be practiced with material which children use for experimentation, such as paper, and cheaper paper may be used in the place of colored paper cut in prepared shapes.

In "An Adequate Equipment," the newer materials are listed that are being incorporated in the modern kindergarten. In such a kindergarten as that of the Horace Mann School of Teachers' College, Columbia University, a wealth of material is needed because of the experimental character of the work. Here the needs of the child are being studied in relation to many kinds of stimuli with a view to selecting those that are best suited to children of kindergarten age.



A. FRANCIS W. PARKER SCHOOL OF SAN DIEGO, CALIF.

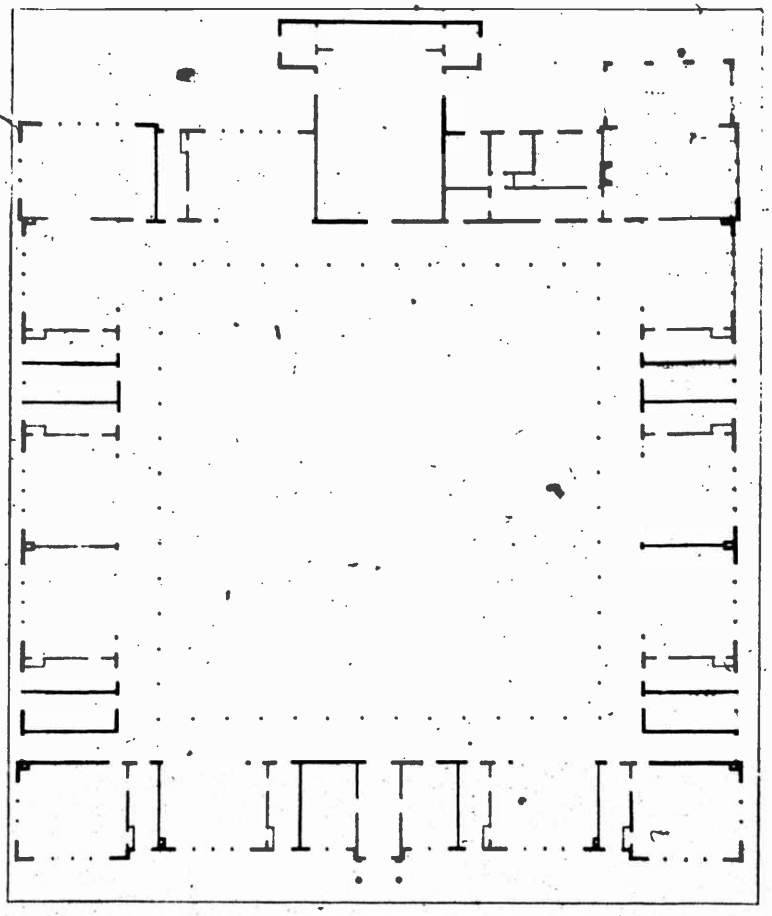


B. KINDERGARTEN ROOM, WELLESLEY COLLEGE.
Note the low cupboards, the excellent type of children's chairs, and the low blackboards.

A. FRANCIS W. PARKER SCHOOL OF SAN DIEGO, CALIF.

B. KINDERGARTEN DIVISION OF FRANCIS W. PARKER SCHOOL, SAN DIEGO, CALIF.

KINDERGARTEN, STATE NORMAL SCHOOL, SUPERIOR, WIS.



PLAN OF THE FRANCIS W. PARKER SCHOOL, SAN DIEGO, CALIF.

This equipment is in no sense intended for the kindergarten of the average school.

A MINIMUM EQUIPMENT LIST FOR A KINDERGARTEN OF 30 CHILDREN.

Because lack of financial support is often an obstacle to the establishment and maintenance of kindergarten classes, the minimum equipment list carries the suggestion that much of the permanent equipment can be made at a considerably smaller cost by the students of local manual training schools or by local carpenters. This list also includes prices obtained from recent catalogues. These prices are subject to change, and, therefore, it has not been thought practical to include prices in the other lists.

The pictures and songbooks required will vary with the type of work planned by the teacher of each class. If no unnecessary material is to be bought, the teacher should be consulted before such lists are completed. Modern additions to the group of pictures illustrating specific subjects will be found in "The Farm Book" and "The Railroad Book," by E. Boyd Smith, published by the Houghton Mifflin Co., and in "The Modern Trade Pictures," published by Milton Bradley Co.

Music books, which contain short songs planned for small children and which should be included in kindergarten minimum equipment lists, are:

1. First-Year Music—Hollis Dann. American Book Co., New York City.
2. Child Land in Song and Rhythm—Jones-Barbour. Arthur Schmidt, New York City.
3. Mother Goose Melodies—Elliott. McLaughlin Bros., New York City; or Mother Goose Songs—Ethel Crowinshield. Milton Bradley Co., Springfield, Mass.
4. Song Primer (teacher's edition)—Beatley. A. S. Barnes Co., New York City.
5. Small Songs for Small Singers (edition without pictures)—Neidlinger. G. Schirmer, New York City.
6. Children's Old and New Singing Games—Hofer.

Suggested additions to a minimum list of music books would include:

1. Song Stories for the Kindergarten—Hill. Clayton F. Summy, Chicago, Ill.
2. Songs for the Child's World No. 1—Gaynor. Milton Bradley Co., Springfield, Mass.

First Gift.—Worsted balls of each of the six spectrum colors can be easily knitted or chochoted and filled with some soft substance. As these balls are to be used as color standards for the children, care should be taken in the selection of pure colors.

Building Blocks.—It is not necessary to include both enlarged Fifth and Sixth Gifts and floor blocks in a minimum equipment list, but it must be remembered that they do not fill identical needs.

The floor blocks are primarily intended for the construction of large buildings and for the bridging of wide spaces, while the Fifth and Sixth Gifts are used for the creation of more varied and perfect forms, as illustrated in the picture of the Superior State Normal School Kindergarten. Sets of blocks of different types, as well as the enlarged Fifth and Sixth Gifts, may be purchased from manufacturers of standardized materials, but it is more economical to have such blocks made by local carpenters or manual training schools.

The set of floor blocks, planned by the First District California Congress of Mothers and Parent-Teacher Associations, is as follows: Forty-eight blocks, 36 by 3 by 1¾ inches; 20 blocks, 24 by 3 by 1¾ inches; 36 blocks, 12 by 3 by 1¾ inches; 100 blocks, 6 by 3 by 1¾ inches; 50 blocks, 3 by 3 by 1¾ inches; 50 blocks, 6 by 6 by 1¾ inches cut diagonally.

Specifications for a set of blocks made from thinner wood and therefore cheaper in price are furnished by Mrs. Mary Barker, of Worcester, Mass.: Forty-eight blocks, 31½ by 2⅜ by ¾ inches; 40 blocks, 21 by 2⅜ by ¾ inches; 72 blocks, 10½ by 2⅜ by ¾ inches; 200 blocks, 5½ by 2⅜ by ¾ inches.

Miss Alice Temple, in her Survey of the Kindergartens of Richmond, Ind., gives still another good plan for a set of floor blocks. Her plan includes 6-inch cubes, a form not used in the already listed specifications: One hundred and fifty blocks, 3 by 6 by 12 inches; 100 blocks, 3 by 6 by 6 inches; 50 blocks, 3 by 3 by 12 inches; 25 blocks, 6 by 6 by 6 inches; 25 blocks, 6 by 6 by 6 inches divided in half diagonally; 40 blocks, 3 by 1 by 10 inches; 40 blocks, 3 by 1 by 24 inches; 20 blocks, 3 by 1 by 30 inches; 20 blocks, 3 by 1 by 36 inches; 12 blocks, 72 by 1 by 10 inches.

Miss Mary Pennell, of Kansas City, Mo., gives a plan for making floor blocks which should supply about five kindergartens of 30 children each: Five hundred blocks, 4 by 2 by 1 inches; 650 blocks, 8 by 2 by 1 inches; 50 blocks, 2 by 2 by 1 inches; 250 blocks, 16 by 2 by 1 inches; 50 blocks, 2 by 2 by 2 inches cut diagonally once; 150 blocks, 36 by 1 by ¼ inches; 150 blocks, 18 by 1 by ¼ inches; 150 blocks, 36 by 2 by ¼ inches.

Fifth Gift.—Twenty-one cubes, 2 by 2 by 2 inches; 3 more cubes cut diagonally once; 3 more cubes cut diagonally twice.

Sixth Gift.—Eighteen oblong prisms, 1 by 2 by 4 inches; 6 more oblong prisms cut in half lengthwise, 4 by 1 by 1 inches; 6 more oblong prisms cut in half crosswise, 2 by 2 by 1 inches.

Paper.—Construction paper: Size 9 by 12 inches, suitable for cardboard construction, mounting pictures, and for certain types of paper cutting. Each package to contain 100 sheets: Two packages of dark brown; one package of gray; one package of dark blue; two packages of light blue; two packages of green; one package assorted.

Bogus paper: Size 9 by 12 inches. This paper is similar in weight to the construction paper and can be used for the same purposes except where color is important. It comes in gray only and is much cheaper than the construction paper. It can be used for experimental work. Each package contains 250 sheets: Four packages.

Drawing paper: Size 9 by 12 inches. White drawing paper is much more expensive than the manila drawing paper, and for experimental work the manila paper is excellent: One ream white; two reams manila.

Paper for folding and cutting: Papers listed by Milton Bradley as "Tonal Papers" and by Prang as "Enginex," put up in packages of 100 sheets each, with assorted colors in each package: Twelve packages, 5 by 5 inches square; 12 packages, 9 by 12 inches oblong.

Gold and silver paper for Christmas-tree decorations: Four sheets silver, 20 by 24 inches; two sheets gold, 20 by 24 inches.

Weaving materials.—In a minimum equipment list, weaving need not be included. If weaving is included it should be of the industrial type which is done on looms. Wooden looms may be made locally. Weaving cards, 5¼ by 7 inches, made of heavy cardboard, with 13 holes at top and bottom, are very satisfactory, or cards with slits at top and bottom may be used. Practical weaving materials are cotton jute for the warp and cotton roving for the woof. The roving may be procured in a number of attractive colors.

Sewing materials.—It is also unnecessary to include sewing in a minimum equipment list. If it is desired to include card sewing, small square cards, large square cards, and oblong cards, similar to Nos. 2, 4, and 6 in the Lanzettel Series, listed by Milton Bradley Co., should furnish sufficient variety. Sewing of a decorative nature, done on coarse materials such as the "Stencillex" listed by Prang, may be substituted for the card sewing. Cotton cloth, large needles, and coarse thread may be provided for making dolls' clothes, etc.

Stringing materials.—Hailman beads, 1 box containing 1,000 beads with assorted forms and colors. Two dozen shoe laces.

Enlarged sticks (uncolored).—One hundred sticks, 1 inch; 100 sticks, 2 inches; 100 sticks, 4 inches; 100 sticks, 6 inches; 100 sticks, 10 inches.

Paints and crayons.—A box of crayons containing six colors and brown and black should be provided for each child, so that he may have ample opportunity for experimentation and representation with color. If funds permit, 15 paint boxes, a paint brush for each child, and 15 small pans for water should be added to the equipment. Each box should contain six colors, brown and black.

Clay.—Twenty-five pounds of clay and a large jar to keep it in. Clay may be obtained in powder form, in packages of 5 pounds each,

It can then be mixed with water as needed and will be found very satisfactory.

Paste.—Five pints of library paste. Paste may be obtained in powder form and should be most satisfactory in communities where transportation is difficult. Fifteen small brushes or two bundles of soft wood slats 4½ inches long should be provided for pasting.

Scissors.—Fifteen pairs, blunt pointed, 5 inches.

White chalk.—One gross.

Paper fasteners.—Three boxes.

Sand.—One barrel.

Glass prism.—One.

Paper cutter.—One, with 15-inch blade.

Punch.—One.

American flags.—Thirty cotton (8 by 14 inches).

Miscellaneous materials.—The following materials should have a place in each kindergarten, but the amounts to be provided vary so with the individual community needs that a list of the different articles is all that can be given: Dust pans and brushes; small brooms; dusters and dish towels; small pitchers and basins; paper towels; soap; paper napkins; garden tools, consisting of small rakes, hoes, trowels, spades, and watering cans; carpenter tools, consisting of hammers, nails of assorted sizes, and small saws; pieces of soft wood.

Toys.—The modern type of kindergarten work requires toys that will help carry out the children's play activities. These toys should include dolls and picture books.

Home materials.—In addition to the materials ordered for the school valuable use may be made of many things thrown away as trash in every home, store, and school. There are many possibilities of construction in shells, toothpicks, match stems, ribbon bolts, spools, berry boxes, collar buttons, milk-bottle tops, string, worsted, feathers, wooden button molds, cardboard, tablet backs, boxes, pieces of smooth wood, colored papers, pins, flowers, vegetable and furniture catalogues, raffia, pieces of cloth of various colors, etc.

Encouraging children to collect and use materials which might otherwise be wasted for the satisfying of their play needs stimulates observation, encourages thrift, and quickens imagination. It also prevents home play from deteriorating into the passive acceptance of the limitations of ready-made toys and encourages the creation of home-made toys. Best of all, if the use of such materials is encouraged in the school the ease with which they can be found and used at home will be the means of bringing school interests and home interests into a close and vital relationship.

THE APPROXIMATE COST OF A MINIMUM KINDERGARTEN EQUIPMENT FOR 30 CHILDREN.

The prices quoted in this list are approximate only. While the catalogues consulted quote recent prices, changes are likely to be made at any time. Carpenter-made tables and blocks will be found to be much cheaper than those made by the manufacturers of standardized materials.

Furniture.—Thirty Mosher chairs, $50; 14 tables (4 feet by 16 inches), $182; 1 sand table, $25: total, $207.

Building blocks.—Twelve enlarged Fifth Gifts, $27; 12 enlarged Sixth Gifts, $27; total, $54 or—1 set of Hill floor blocks, $60.

These sums can be made much smaller if all the items except chairs are made locally.

Paper.—Construction: One hundred sheets (9 by 12 inches) to each package. One package of gray: two packages of dark brown; one package of dark blue: two packages of light blue; two packages of green; one package of assorted: total (nine packages), $6.

Bogus: Two hundred and fifty sheets (9 by 12 inches) to each package, four packages, $2.

Drawing: One ream (9 by 12 inches) to each package, two reams manila; one ream white; total (three reams), $4.

Folding: One hundred sheets (assorted colors) to each package. 12 packages (5 by 5 inches), 12 packages (9 by 12 inches); total, 24 packages, $8.40.

Gold and silver sheets: 20 by 24 inches, two sheets of gold; four sheets of silver; total, six sheets, 60 cents.

Grand total, $21.60.

Stringing materials.—Hailman beads, 1,000 beads (assorted forms and colors) to each box: One box, $2; two dozen shoe laces, $1; total, $3.

First Gift.—One set First Gift, $2.

Enlarged sticks (uncolored).—One hundred, 1 inch; 100, 2 inches; 100, 4 inches; 100, 6 inches; 100, 10 inches; total (500), $1.20.

Crayons.—Thirty boxes (six colors and brown and black), $4.50.

Painting materials.—Fifteen boxes (six colors and brown and black and with brush), $7.50; 1 dozen No. 7 paint brushes, 80 cents; 15 water cups, 70 cents: total, $9.

Clay.—Twenty-five pounds clay powder, $2.

Paste.—Five pints paste, $2.80.

Scissors.—Fifteen pair, sharp point, 5-inch, $4.10.

Chalk.—One gross white, 40 cents.

Paper fasteners.—Three boxes, 90 cents.

Glass prism.—One, 50 cents.

Paper cutter.—One, 15-inch blade, $12.

Punch.—One, 50 cents.

Rubber balls.—Six, 6 inches in diameter, $5.10.

Total for working materials, except building blocks, $69.

AN ADEQUATE EQUIPMENT LIST FOR A KINDERGARTEN OF 30 CHILDREN.

Building blocks.—Fifteen enlarged Fifth Gifts; 15 enlarged Sixth Gifts; 1 set Hill floor blocks; or—1 set floor blocks locally made and 15 enlarged Fifth Gifts; 15 enlarged Sixth Gifts (to be purchased in bulk).

First Gift.—One ball for each child.

Enlarged sticks (uncolored).—Three hundred sticks, 1 inch; 300 sticks, 2 inches; 200 sticks, 4 inches; 200 sticks, 6 inches; 200 sticks, 10 inches.

Stringing materials.—Hailman beads: One box (1,000 beads) assorted colors and forms; one box (1,000 beads) uncolored, assorted forms; one box (500 beads) enlarged, spheres, assorted colors.

Enlarged peg boards.—Fifteen peg boards, with pegs.

Crayons.—Thirty boxes (six colors and brown and black).

Painting materials.—Fifteen paint boxes (six colors and brown and black, with brush); 2 dozen No. 7 paint brushes; 15 water cups; tempora colors (for poster work); or—fresco paints, one set (containing six colors, black, white, and brown); two large brushes.

Pencils.—Two dozen (with large lead).

Blackboard materials.—One gross white chalk; one set lecturer's colored crayons (for teacher's use); six blackboard erasers.

Paper.—Construction: 9 by 12 inches (100 sheets per package)—two packages gray; two packages dark brown; one package dark blue; three packages light blue; three packages green; one package assorted. 12 by 18 inches (100 sheets per package)—one package brown; one package green.

Bogus: 9 by 12 inches (250 sheets per package)—six packages.

Drawing: 9 by 12 inches—2 reams white; 2 reams manila.

Folding and cutting ("Enginex," listed by Prang, or "Tonal," listed by Milton Bradley Co.): Twelve packages, 6 by 6 inches, assorted colors; 12 packages, 6 by 9 inches, assorted colors; 4 packages, 6 by 6 inches, black; 2 packages, 5 by 5 inches, circular, assorted colors.

Gold and silver: Two sheets, gold, 20 by 24 inches; six sheets, silver, 20 by 24 inches.

Practice: 7½ by 9 inches—two bundles (10 packages each).

Manila wrapping (for poster work): One roll with holder.

Clay modeling materials.—Fifty pounds clay; one clay jar; 1 dozen clay modeling tools; 2½ dozen clay boards, 7 by 9 inches.

Pasting materials.—Six pints paste; 2 dozen paste brushes; or four bundles splints, 4½ inches; 2 dozen paste dishes.

Weaving materials.—Six packages industrial weaving mats (listed by Milton Bradley Co.); one Tyndall loom (listed by Milton Bradley Co.); 2 dozen 10-ply weaving cards, 5½ by 7 inches; cotton roving (for woof—obtainable in 1-pound spools): Two spools dark blue, two spools light blue, two spools brown, two spools green; cotton jute (for warp), 4 pounds.

Sewing materials.—Four packages tapestry needles (large). Worsted (Germantown): One-half hank, each of 6 colors, 1 tint and 1 shade with black and white. (There are many cotton substitutes which are much cheaper than worsted; two of them are "Angorina Fluffed Cotton," and "Cottondown Yarn.") Stencillex (listed by Prang): Four packages (25 pieces each), 9 by 12 inches. Thread, coarse: One spool white; 1 spool black. Two papers of coarse needles. Six small thimbles. Cloth of various textures and colors.

Woodworking materials.—One workbench; 4 hammers; 1 pound assorted nails; 2 saws; 1 brace and bit; 2 small planes; 1 dozen sheets assorted sandpaper; 1 pint glue; small quantity of paint (green, brown, red); stain (green, brown); varnish or shellac.

Pieces of soft wood (pine or basswood): Three dozen, 5 by 1¾ by 2½ inches; 3 dozen, 1¾ by 2½ by 2½ inches; 3 dozen, 5 by 4½ by $\frac{7}{16}$ inch; 3 dozen, 4½ by 2½ by $\frac{7}{16}$ inch. (The proportions of the pieces of wood are provided by Mrs. Mary Barker, of Worcester, Mass.) Odds and ends of soft wood from a carpenter or manual training shop.

Gardening materials.—Six watering cans; 6 trowels; 6 small hoes; 1 rake with iron teeth; 1 rake with wooden teeth; 1 small spade.

Housekeeping materials.—The amount of housekeeping materials to be provided will differ so much with the needs of the individual school that only the items can be given. They are as follows: Wash-bowls, pitchers, paper towels, paper napkins, cheesecloth dusters, dish towels, dish pans, small brooms, dustpans and brushes, small mops.

Toys.—The number of toys to be provided will vary with the type of program planned by the individual teacher, so that only items can be given: Dolls (large and small); doll furniture (cradle, carriage, house, dishes); toy animals; wagon; puzzles; sand toys.

A "Kinderhaus" or house screen.—Miss Alice Temple, in the "Survey of the Kindergartens," of Richmond, Ind., gives the following proportions for use in the building of a play screen locally: Four parts of the screen are 5 feet in height and 32½ inches in width. The fifth part, which contains the door, is 5½ feet high, but the same width as the others. Some provision should be made for at least one window.

Miscellaneous materials.—Twelve 4-inch rubber balls; 6 bean bags; picture books; story books; 2 wastebaskets; 1 churn; 2 cardboard clock dials; 30 cotton flags, 8 by 14 inches; 1 large silk flag; thirty

4-inch material trays; sufficient oilcloth to cover the children's tables; one 15-inch paper cutter; 4 boxes paper fasteners; 1 paper pins; growing plants; 1 prism; 1 large punch; 1 barrel sand; 30 pairs scissors, sharp pointed, 5-inch; 1 terrarium.

Home materials.—The collection of "home materials," listed in the minimum equipment list, should have an important place in every kindergarten equipment.

Equipment list from the Horace Mann Kindergarten.—Miss Hill gives the following list of the rich equipment in use at the Horace Mann experimental kindergarten:

Furniture and furnishings: Piano (music cabinet); Victrola and Columbia graphophone (records); chairs and tables (different sizes of each); rocking chair; blackboard; bulletin boards for exhibiting children's work; sand box; individual lockers; step ladder (small); screen; box for blocks (built in); box for blocks (movable), 2; clock; thermometer (large); cups (individual); towels (small); vases, pitchers; button hooks; window boxes.

Apparatus: Slide, merry-go-round, ropes, walking boards, see-saw, horizontal bar, ladder.

Permanent play material: Floor blocks with additions; bars; wheels; mechanical sections; pillars; wooden planks (thin, for floors); blocks (miscellaneous in box)—one Third, Fourth, Fifth, Sixth Gifts, large and small, two peg lock, three spools, four odd blocks; 5 boards and heavy cardboard for roofing; beads (large and small, assorted colors); peg boards; large sticks; concrete tiles; compoboard for roof and floor.

Toys and playthings: Dolls (boys, girls, babies, several sizes of each; Schoenhut-Chase; small for dressing); doll and children's furniture; child's cradle; doll stove; rocking-horse (two); dishes (children's set, doll's set); wagon; doll carriage; hoop; balls; wooden rings; books; pictures; child's piano; band instruments; cooking utensils (animal cookie cutters); bubble pipes; churn; ice-cream freezer; washing and ironing set; flags; rope; wooden animals and trees; dishpan; broom and dustpan; mop; puzzles; stilts.

Tools: Carpenter bench; hammer, saw, brace and bit; ruler (yard and foot); large punch; compass; paper cutter; paints (individual boxes); crayons (individual boxes); scissors (pointed); thread; needles; thimble; clay knives; garden tools (hoes, spades, wooden rakes, garden rakes, watering cans); brushes, paint, paste; paint cups; paste boxes (individual); bodkins; chalk; clay boards; oilcloth; scroll saw; aprons for children.

Materials, art and industrial: Wood (different proportions); cloth (variety of texture and colors); worsted (eightfold Germantown, variety of colors); cotton roving (variety of colors); paper (differ-

ent grades and colors); tag board (different weights); clay; dyes (Easy, Diamond); shellac.

Primary materials: Printing alphabet, etc.; reading games; number games.

Live animals and cage: Bird; fish; visiting (hen and chickens, rabbits, mice, turtle, cat, dog, alligator, dove).

Equipment list from the First District California Congress of Mothers and Parent-Teachers' Association.—The report of the First District California Congress of Mothers and Parent-Teachers' Association, published in 1917, lists the following equipment for kindergarten and playground:

Furniture, materials, etc., for the adequate, minimum equipment of a kindergarten for 25 children: Four sets, First Gift; 12 sets, Second Gift in boxes; 12 empty Third Gift boxes (enlarged); 12 Fifth Gift in boxes (enlarged); 12 Sixth Gift in boxes (enlarged); 200 tablets, enlarged, circles; 200 tablets, enlarged, squares; 300 tablets, enlarged, right-angle triangle; 200 sticks, enlarged, plain, each 2 inches, 4 inches, 6 inches, 10 inches, 12 inches; 200 rings, 1¼ inches; 100 rings, 2 inches, 100, 1 inch; 25 one-half rings, 1¼ inches; 25 one-half rings, 2 inches; 200 slats, plain, 10 inches; 200 slats, colored, 10 inches; 4 bundles slats, soft wood, 4½ inches for paste; 1 box (large) Hailman beads, colored, small; 1 box Hailman beads, uncolored, small; 1 box (large) Hailman beads, colored (enlarged); 6 dozen bead laces; 25 bead trays; 25 peg tiles, enlarged; 1 box tile pegs, 1,000 pegs; 25 sticks crayola, each, red, green, orange, yellow, blue, violet, black; 12 sticks each crayola, pink, black, brown, white; 1 tube each, standard colors, red, orange, yellow, green, blue, violet, sepia; 1½ dozen paint pans; 25 paint brushes; 1 box white chalk; 1 box chalk, colored (small); 1 prism; 1 lap each, Germantown, red, orange, yellow, green, blue, violet, brown, white, gray; 2 packages worsted needles No. 18; 6 packages, parquetry circles, each package containing 100 circles of each standard color; 2 packages each, folding squares 5 by 5 white and black; 1 package each, folding squares, black, gray, brown, 5 by 5; 1 package each, folding circles, solid colors, red, orange, yellow, green, blue, violet, gray, brown, black, 5 by 5; 1 package each, cutting squares, 5 by 5, solid colors, red, orange, yellow, green, blue, violet; 1 package each, cutting circles, 5 by 5, solid colors, red, orange, yellow, green, blue, violet; 1 package each cutting squares, 5 by 5, six standard colors with one tint and one shade and gray; ditto, cutting circles; 1 package black-coated paper, 6 by 9; 1 ream bogus paper 9 by 12; 1 ream gray water color, 9 by 12; ½ ream white water color paper, 9 by 12; 1 ream newspaper; 2 quires tissue paper, white; ½ quire tissue paper each, red, pink, orange, green, blue, violet, brown; 6 packages paper strips 1 inch wide (engine), solid standard colors;

1 package each, weaving mats, industrial, Nos. 1235, 1236 (Milton Bradley catalogue); 1 dozen Ball's weaving needles; 2 dozen each, sewing cards (shoe laces) Nos. 1 and 5; 25 each, sewing cards, Langzettel, Nos. 2 and 3; 2 dozen laces, cotton, colored; 1 each, construction paper, red, green, gray, brown, dull blue, 9 by 12; 1 each, construction paper, gray, brown, black, 12 by 18; 5 packages pins; 25 pounds clay flour; 1 clay jar; 3 yards oilcloth; 20 scissors No. 4; 1 conductor's punch; 5 pints paste; 1 box soda straws; 1 cork ball; 3 rubber balls, 4 inches; 6 boxes paper fasteners.

Furniture: 14 tables (tops 20 by 36; ten 20 inches high, four 18 inches high); 30 Mosher rubber-tipped chairs (two 14 inches high, fourteen 12 inches high, fourteen 10 inches high); 1 sand table (with adjustable cover), 6 feet by 4 feet and 2 feet high; 1 piano (may be rented); 1 teacher's desk; 1 American flag; 1 clock; 3 large chairs; 6 erasers.

Additional materials and toys: Dolls of all kinds, doll bed, table, wash tubs, irons, brooms, dishes, and a collection of other usable sanitary toys.

Shells, tooth picks, paper sacks, ribbon bolts, spools, berry boxes, nature materials, bean bags, collar buttons, milk bottle tops, pasteboard boxes of all sizes, raffia, etc.

Large blocks:[1] Forty-eight blocks, 36 by 3 by 1¾ inches; 20 blocks, 24 by 3 by 1¾ inches; 36 blocks, 12 by 3 by 1¾ inches; 100 blocks, 6 by 3 by 1¾ inches; 50 blocks, 3 by 3 by 1¾ inches; 50 blocks, 6 by 6 by 1¾ inches, cut diagonally.

Outdoor apparatus: Space not less than 60 by 60 feet. Sand bed: Size, 10 by 12 feet at least; height, 1½ feet; ledge on top, 10 to 12 inches wide.

Large box (padlocked), for miscellaneous blocks, spools, tins, shells, pails, shovels, these for use in sand bed.

Slide: This may be purchased from any playground apparatus house or it may be made locally. Height, 6 feet length of hardwood board for chute, 10 feet; edge (above board), 2 inches; approach—fence; landing—3 feet square; height of railing about landing, 1 foot. Slide should rest in sand or sawdust box 6 by 8 feet. Ground should be excavated to depth of 8 inches at base, so that top of box is almost even with ground. There should be a curve in the board at bottom of slide.

Ladder (double): Base, 45 inches; height, 45 inches; steps (8), 3 inches wide; material, pine.

Walking board: Length, 12 feet; width, 5 inches; elevation, 3 inches.

[1] We suggest the Hill blocks for floor use. These may be made locally in sloyd department or in a planing mill. Hardwood is used for all of the smaller blocks.

Swings: May be purchased at apparatus house or made locally with little expense. Baby swing (strapped seat) is recommended for kindergarten use. Frame work for any swing, wood or iron, 10 feet high; rope, $\frac{5}{8}$ inch to 1 inch preferred to chain. A strong rope knotted at bottom and suspended from the limb of a tree or a strong closed ring serves as a swing or climbing rope.

Turning bar: Two upright posts of wood or galvanized iron 3½ or 4 feet high.

Seesaw: Length, 12 feet; height of horse, 2 feet; material, pine, ends cleated. Horse may be made of wood or iron. There should be a hand support at either end of teeter.

Tools: (*a*) Carpenter: Six hammers (cobblers); 1 crosscut saw (small); 1 coping saw; 1 key-hole saw; 3 size wire nails; 1 small plane (block); coarse sand paper; glue, paint, stain. (*b*) Garden—Three hoes, 3 rakes, 1 shovel, 3 trowels, 3 scratch-handle rakes, 3 watering pots (4 quarts).

Wooden boxes of various sizes are a great stimulus to all out-of-door play.

Tables and benches should be provided for out-of-door work; the ledge on sand bed may be used as a table.

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