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Duplicate Schools in The E

BY
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DUPLICATE SCHOOLS IN THE BRONX, NEW YORK

In February, 1915, the first Bronx school was reorganized in accordance with the duplicate-school plan of Mr. William Wirt. An account of the first six months of operation under the new system has been published by the writer*. Five additional schools inaugurated the new plan on February 1, 1916. The six schools included in the present account are 6, 28, 42, 44, 45, 53.

The object of the account is to present facts, useful for our guidance in the further development of the schools and the correction of mistakes made. Incidentally, the public may learn from first-hand testimony what these schools are trying to do, what are the obstacles to be overcome, and what are the results already achieved.

The information contained in the report was contributed, in answer to the following questionnaire, by principals and teachers employed in the schools considered.

Questionnaire

(To be answered by teachers)

1. *The Aim.* What do you mean to accomplish by the activity?
2. *The Equipment.* What does it consist of? Is it adequate? If not, what more do you need?
3. *Supplies.* Are your supplies adequate in kind, quality, and quantity? If not, specify deficiencies.

* *Educational Review*, January, 1916. "A Report on the Gary Experiment in New York City."

4. *The Course of Study.* In what respect have you modified, or supplemented, or improved upon the prescribed course of study? What suggestions for further modifications have you to make? If no official course of study exists, give an outline of the course you have devised.

5. *Summary.* Give a list or summary of what children have accomplished during the present term. What products have you sold? What income have you derived from such sales? What did you do with the money?

6. *Handicaps.* What have been the chief handicaps to success? What remedies do you suggest? State possible ways of improving your activity.

7. *Grades.* Give the grades of children assigned to your activity.

(To be answered by the Principal.)

1. How often do children change from one special activity to another? Support your scheme of alternation by educational arguments.

2. Explain your method of assigning children to special activities. To what extent do you permit children to choose? In what order do children take drawing, science, shop? Defend your scheme. Do you keep records of the assignments of individual children, so that at any moment you can tell what a child has had? Describe these records with illustrations.

3. Submit three samples of each kind of special blank or report devised by you for the administration of your school.

4. Mention any improvement you can suggest in the matter of:

- a. The general program.
- b. The management of special activities.
- c. The academic subjects.

d. The welfare of teachers, children, or the school as a whole.

The replies received from several hundred teachers and six principals are a candid record of our experience, including errors and handicaps. The material was assembled primarily for use in conferences, in the hope that what is good might be made better, and what is ill might be cured. Many of our difficulties are due to premature reorganization, most of the schools having gone on the new program before proper equipment and supplies had been secured. But in spite of errors and hindrances, this report shows that many important achievements, impossible in an ordinary school, must be credited to these schools as a result of only five months of operation. The combined register of the six schools on May 31, 1916, was 17,406.

In organizing the material under the several captions given in the questionnaire, the writer does not mean to convey the impression that such things are peculiar to the duplicate school. The object was rather to help the teachers to think out their problems. Lack of definite aim is one of the commonest faults of teaching. It would do any teacher good to stop long enough to consider his aims. In the duplicate school it is absolutely essential that he do so, for one of the prime objects of the organization is to develop the initiative of teacher and pupil. The equipment is itemized to let the public know what the teachers have to work with. The handicaps are given because we intend to remove them; and to do so we must know what they are. Handicaps are not peculiar to the duplicate school. Similar troubles beset all teachers. The writer has had thirteen years of experience as a classroom teacher in New York, and he knows whereof he speaks. In fact, there is not a single

feature of the duplicate school that is not familiar school practice somewhere. The only thing that is new is the integration of its several parts and processes.

The report covers only those features of the instruction, organization, and management which are characteristic of the duplicate schools. The standard academic subjects—English, mathematics, history, geography—are not displaced by anything in the new form of organization. They are, however, taught by the departmental system, and supplemented by auditorium exercises, play, and shop work. It is too soon to attempt to measure the effect of the duplicate organization on the regular studies. In five of the schools I have personally made no inspection of these subjects since the reorganization was effected. I merely remark that, since the traditional subjects have about the same time allowance they had before and are taught by specialists and supplemented by other activities, it would be strange indeed if they suffered harm. On the contrary, other things being equal, the regular subjects should have a far better chance of yielding their best fruits in a school that emphasizes initiative, motivation, application, and self-help, than in a school where teaching is predominantly a matter of juggling words.

Following is a table of special activities, showing the schools in which they are taught:

TABLE OF SPECIAL ACTIVITIES.

Subject	Schools						Total
	6	28	42	44	45	53	
Auditorium.....	x	x	x	x	x	x	6
Domestic Science.....	x	x	x	x	x	x	6
Drawing.....	x	x	x	x	x	x	6
Nature.....	x	x	x	x	x	x	6
Sewing.....	x	x	x	x	x	x	6
Farming.....					x		1
Millinery.....			x		x		2
Library.....	x		x	x		x	4
Science.....	x	x	x	x	x	x	6
Carpenter.....					x		1
Cabinet Shop.....						x	1
Music.....	x	x	x	x	x	x	6
Manual Training.....	x	x	x	x	x		5
Play, Physical Training...	x	x	x	x	x	x	6
Commercial.....	x			x		x	3
Machine Shop.....			x				1
Pottery.....					x		1
Sheet Metal.....						x	1
Printing.....		x	x	x	x		4
Total.....	11	10	13	12	14	12	..

THE AUDITORIUM

1. **The Aim.** The following aims are enumerated by the several teachers in charge of auditoriums:

- (1) The correlation of academic subjects.
- (2) The socialization of the child through the development of social responsibility and social service.
- (3) The development of initiative, confidence, self-control.
- (4) Unification of the school through cooperation with classroom work and the promotion of school spirit.
- (5) The cultivation of individual morality, appreciation of good music, a broader knowledge of the

outside world, and self-expression in literature and music.

(6) To deepen the interest and knowledge of children in classroom work by means of phonograph, piano-player, lantern slides, dramatizations, lectures, stories, etc.

(7) To vivify direct teaching by the indirect method of the auditorium, such indirect teaching having often greater significance than direct instruction, though its value cannot be measured by quantitative standards.

2. **The Equipment.** A typical auditorium equipment includes the following:

- 1 Grand piano.
- 1 Oak table with drawer.
- 1 Teacher's desk.
- 1 Cabinet with drawers for stereopticon slides.
- 1 Cabinet for stereographs.
- 1 Movable blackboard.
- 1 American flag on staff.
- 1 Pathescope or other moving picture machine.
- 1 Stereopticon lantern.
- 1,000 Lantern slides.
- 1,000 Stereographs.
- 48 Stereoscopes.
- 1 Victrola.
- 29 Double Phonograph records.
- Film service from Pathescope Company (3 reels a week).
- 8 Movable coat racks.
- 1 Screen on roller.
- 1 Bible stand.
- 1 Music stand.
- 1 dozen movable chairs.

3. **Exercises.** One school has a program of exercises that repeats in cycles of eight different activities, as follows: Music and literature; music and geography; music and ethics; music and history; music and hygiene;

music and science; music and current events; music and recreation.

(1) *Literature.* This work may be divided into two parts,—work done by teachers, and work done by pupils. The teacher's work consists of lectures or talks on literary masterpieces, such as the plays of Shakespeare, the Iliad, classic myths, Grimm's Fairy Tales, Kipling's *Just So* stories, animal stories, etc. The work done by pupils consists of the reading of original compositions, recitation of memory selections, declamations, and dramatizations. In a single school sixteen plays were given in one term, in which 182 different children had parts to play. All holidays were celebrated by a lecture or a dramatization, or both.

(2) *Geography.* In all grades where geography is prescribed, the auditorium work in that subject is correlated with classroom teaching. Much of the work consists of lectures by teachers or pupils, lantern and moving picture illustrations, and original compositions embodying the result of research work.

(3) *Ethics.* As far as possible, in the school above referred to, the work in ethics is combined with work in literature. The sources for ethical stories were chiefly these:

- (a) Shedlock's "Art of the Story Teller."
- (b) Andersen's Tales.
- (c) Tolstoi's Stories.
- (d) The "Golden Rule" Series.
- (e) Baldwin's "Fifty Famous Stories."
- (f) "American Book of Golden Deeds."
- (g) Chutter's "The Art Literature Reader."
- (h) Bryant's "Stories to Tell Children."
- (i) Cabot's "Ethics for Children."

(4) *Hygiene.* This work consists of practical lectures on cleanliness, posture, and other similar topics. Literature from the Board of Health is distributed to pupils and sent home to their parents. Lectures have been delivered to upper grade classes by physicians and nurses on such topics as bodily health, care of teeth, proper posture, proper clothing, care of eyes, baby week, mosquito week, etc.

(5) *History and Civics.* Four lectures were delivered in one school on civics by State Senator Hamilton and four by Assemblyman Fertig. In another school lectures are delivered once a week by representatives from city departments, private organizations, and public service corporations. Among the organizations heard from by the children are these:

(a) Police, Fire, and Tenement House Departments.

(b) Electrical Department of the Board of Education.

(c) The Board of Aldermen.

(d) New York Telephone Company.

(e) S. P. C. C. (Society for the Prevention of Cruelty to Children).

(f) A. I. C. P. (Association for the Improvement of the Condition of the Poor).

(g) The machine shop of the school.

(h) The manual training shop.

(6) *Science.* Some of the science teachers have contributed illustrated lectures on subjects taught in their laboratories. In nature study there have been lectures for first year pupils on the cat, dog, horse, cow; for second year children, on the owl, camel, horse, cow; for third year pupils, on the tiger, lion, buffalo, bee; for fourth year children, on the spider, clam, oyster, turtle; for fifth year pupils, on the sponge, pearl, mos-

quito, fly; for sixth year children, on the silkworm, fly, mosquito.

(7) *Current Events.* There have been, in one school, illustrated lectures on the building of the Panama Canal, the Making of a Newspaper, Electroplating Process, the Building of a Bridge, the Great European War. On special occasions there are appropriate talks. Thus on Memorial Day, there was a lecture on Farragut; on Lincoln's Birthday there was a lecture on Monuments of Lincoln, with illustrations.

(8) *Recreation.* In many schools children present folk dances on the stage. They also present dramatizations of all sorts, many of the plays being written by the children themselves.

(9) *Music.* The theory of music is taught in classrooms by specialists and supplemented by choral work in the auditorium. Usually one of the auditorium teachers has charge of the musical part of the program. In one school the following songs were sung in the auditorium by the several grades:

EIGHTH GRADE.—O Rest in the Lord; To America; Vesper Hymn; Who Is Sylvia?; I Know a Bank; Hark, Hark, the Lark; Russian Hymn; The Flag.

SEVENTH GRADE.—A Hymn; I Know a Bank; Hark, Hark, the Lark; To Thee, America; The Lord is My Light; Merry Heart.

SIXTH YEAR.—These Were Four Lilies; A Rose Song; To Thee, America; Hark, Hark, the Lark; The Star; My Song; Soft Shell Crab.

FIFTH YEAR.—Hearing; The Woodpecker; The Katydid; A Spring Song; Questions; To a Daisy; What Robin Told Me.

FOURTH YEAR.—Indian Lullaby; Winter Song;

Katydid; The Children in Japan; Smelling; The Violet.

THIRD YEAR.—A Spring Song; Waiting to Grow; Children in Japan; The Ginger Cat; Pussy Willow; Snowflakes; The Owl; Brownies' Umbrellas.

SECOND YEAR.—Snowflakes; A Spring Song; The Sandman; The Owl; Little Bo Peep; Wing Foo; Cradle Song.

FIRST YEAR.—Honk, Honk; Teddy Bear; Hurdy Gurdy Man; Once I Got Into a Boat.

The children of this school gave a dozen concerts, consisting of duets, trios, quartets, chorus work, and playing of various musical instruments, such as violin, 'cello, and zither. Vocal and instrumental phonographic concerts were also provided, the children loaning many of the records. I attended one of these the day after I had heard a performance of *Aida* in the Metropolitan Opera House. The concert by chance consisted of the telling of the story of the opera by a child, followed by extracts from the opera rendered by the Metropolitan artists.

One teacher, in his report on the auditorium, says: "It is difficult to measure what the children have accomplished. Perhaps it may best be shown by their eagerness and desire to come to the auditorium. They seem to regard this period as a treat. Judged by this test, the activity seems to have accomplished its aims."

4. **The Grades.** In the following table are shown the grades that are represented in each auditorium period in each of the six schools. The schools that show only six periods use a program with fifty-minute periods, while those that have eight periods use the forty-minute periods.

AUDITORIUM

School	Periods and Grades							
	1	2	3	4	5	6	7	8
6	2A-3B	4A-6B	7A-8B	7A-8B	4A-6B	2A-3B		
28	1A-3B	7A-8B	7A-8B	1A-3B	4A-5A	5B-6B	3B-5A	5B-6B
42	6B-7B	4A-6B	6B-7B	3B-6A	1A-3B	8A-8B	8A-8B	1A-3B
44	8A-8B	4A-4B	2A-2B	7A-7B	3A-3B	5A-5B	1A-1B	6A-6B
45	5A-8B	1A-4B	5A-8B	1A-4B	5A-8B	1B-4A	4B-8B	1A-4A
53	3B-6B	2A-3B	6B-8B	6A-8B	2A-3B	4A-6B		

Much has been made by opponents of the duplicate plan of the alleged impossibility of doing profitable work where so many grades are taught together. It is quite common to find in an assembly of the traditional schools as many as eight grades. These sing choruses together, listen to recitations of pupils, and hear talks by principals teachers, and visitors. The largest number of grades found in any group in the above table is eight, while one school has no more than two grades present at any time.

5. **Handicaps.** A significant feature of these reports is that some teachers devote nearly all their space to a summary of achievements and constructive criticism, while others occupy most of the room with complaints and negative criticism. Yet they all have substantially the same opportunity. The success of auditorium work depends very largely upon the ability and attitude of those in charge. Teachers who have the necessary breadth of knowledge and sympathy and possess social vision are enthusiastic about this feature of the duplicate school. Those who cannot or will not see the meaning of it all, fret about hours, and wraps, and seats, and find no joy in the business. As soon as possible such

teachers will receive more congenial assignments. The theory of the duplicate school assumes that we have specialists for each activity who are in sympathy with its aims and possess the necessary skill for the accomplishment of such aims.

The handicaps enumerated by the several auditorium reports are as follows: (1) Not enough teachers; (2) Too many grades; (3) Care of wraps; (4) Unadjusted seats; (5) Poor ventilation; (6) Switchboard for lights in the hall; (7) Lack of light-proof transoms; (8) Drafts; (9) No plug in the floor for pathescope; (10) Lateness; (11) Period too long (50 min.); (12) Pillars in the room; (13) Too many changes in the auditorium groups.

Many of these complaints are well founded. In winter, when the fans are running, the ventilation of the modern auditorium is good; in warm weather, when these fans stop, the ventilation is poor. While the room was in use only fifteen minutes a day, the question of ventilation was comparatively unimportant; now that the room is in continuous use, ventilation is all important.

It is possible, as shown in the case of Public School 44, to have assemblies with only two grades present; but in order to accomplish this, other things, possibly more important, have to be sacrificed. It is quite possible to have, during the same period, exercises adapted to different groups of children present at an assembly. For instance, one teacher may tell a story suitable for first-year pupils. If third-year pupils are present they will gladly listen to the story. This may be followed by a song for third-year children. Then there may be dramatization, or victrola music, or lantern slides, which will be equally interesting to all.

Where lockers have not been provided in sufficient quantities to care for the children's wraps, immediate steps should of course be taken to remedy the defect. There is a solution to this problem of wraps, and there is no good reason why the board of education should justify further complaint. To avoid carrying wraps, children will have to deposit their clothing in the place where they will be during the last period of a session. This means that there must be in or near the auditorium lockers to accommodate all the children that assemble there during a given period. The yard also must have lockers for one division; and each classroom, shop, and studio must have locker room for as many children as it holds. In case of a fire-drill during inclement weather, a preliminary signal is given to send children where their wraps are. This has to be done in the traditional school also for all departmental pupils. In case of a real emergency, the children would of course be sent to a place of safety without wraps.

The matter of seats is not easy to remedy. The duplicate school is no different in this respect from any other. The auditorium of a school is meant to be used at night for lectures to adults or meetings of parents. The seats are therefore rather too large for children. If they are made to fit children they are too small for adults. A compromise is all we can hope for; that is, a seat reasonably comfortable for children, even if it cramps adults.

DOMESTIC SCIENCE

1. **Aim.** Here is the way the aims are enumerated by the teacher of the school that has operated longest under the duplicate plan:

(1) To have children become familiar with household utensils and accustomed to their use.

(2) To give practice in preparing food in quantities sufficient for an average family.

(3) To teach economy in buying and preparing food.

(4) To teach children the best ways of keeping themselves and their homes clean and sanitary.

(5) To give practice in combining foods so as to supply all the needs of the body.

(6) To have children appreciate the necessity, in a lunchroom, of fixing the selling price of food in relation to the expenses involved.

(7) To teach color harmony for home decoration.

2. Equipment. A typical equipment is something like the following:

(1) Cooking tables with cupboard and drawer for utensils, for about 24 children.

(2) Cupboards for class utensils, dishes, and food supplies.

(3) Two gas ranges.

(4) Equipment for table setting—table linen, silver, dishes, chairs, etc.

(5) Apparatus for cleaning and house work—brushes, cleaning cloths, boiler.

(6) Laundry equipment—tubs, washboards, towel racks, ironing boards and stands.

(7) Home nursing—couch, bed linen, bandages.

(8) Refrigerator.

Public School 45 has added to the above out of the profits of the kitchen, or a private purse:

(9) An electric dishwasher.

(10) An electric towelwasher.

(11) Steam table.

(12) Coffee percolator.

(13) Tea wagon.

(14) Water cooler.

(15) Cash register.

(16) Kitchen scales.

3. **Supplies.** The supplies are purchased and paid for by the teacher, who renders a bill in triplicate to the department of education at the end of the month. In due time—usually in a month or so—she receives a check from the finance department. One teacher complains that “the supplies are inadequate on account of insufficient allowance. The present rate is $1\frac{3}{4}$ cents per child per lesson; $2\frac{1}{2}$ cents would be better.” In schools having service kitchens where food is sold, part of the supplies are paid for out of current receipts.

4. **Course of Study.** Two teachers have followed the prescribed course. All the rest report modifications, either slight or radical.

(1) “I have changed the course by teaching quick breads at the end of the seventh year instead of at the beginning, and by teaching yeast breads in the eighth year instead of the seventh.”

(2) A school with service kitchen reports:

“The present course of study is planned for four terms’ work, consisting of a lesson per week, with preparation of food in small quantities. As my pupils come daily for a period of thirteen weeks, and as they go alternately to the lunchroom and the theory room—the class being divided in half for that purpose—that course cannot be used. The work in the lunchroom consists solely of the preparation of the lunch, and the constant clearing away of accumulated soiled dishes, etc. Girls are also trained to take charge of the cash-register during the time when lunches are sold.

“The work in the theory room is correlated as much as possible with the work in the kitchen, as costs, nutritive value and methods of preparation of foods, sanitation, menus, etc., are constantly discussed; in addition, other knowledge needed by a homemaker, such as proper combination of colors used in a home, proper methods of cleaning, etc., is imparted. One class also keeps a daily

and weekly record of expenditures, income, number served, etc., on blanks printed in the school."

5. **Handicaps.** "Not time enough" is the complaint of several. Two teachers suggest that children be allowed to remain in the kitchen all of the morning session or all of the afternoon session. The first class in the morning never sees the completed food. One of these teachers also wants a large storeroom, so that food may be purchased in quantities and for less cost.

6. **Grades.** Two schools include only the 7th and 8th years; one has grades 4B-8B; two have 5A-8B; and one has 6B-8B.

DRAWING

1. Aim.

(1) To give children the ability to draw rapidly and accurately simple objects and groups of objects involving the principles of perspective.

(2) To teach good color combinations and their applications.

(3) To cultivate appreciation of good art.

(4) To enable children to make simple working drawings and to construct geometric forms.

(5) To make such occasional free-hand sketches as mechanics are called upon to make.

(6) To arouse an interest in the subject.

(7) To develop the power to appreciate and enjoy beauty and perfection in things about us, whether they be the works of God or man.

(8) To make drawing a ready means of expression.

(9) To cultivate good taste and originality.

2. **Equipment.** Thus far the authorities have provided no special room for drawing. In all cases the teachers are using a conventional classroom with stationary seats and desks.

The equipment includes the following items:

- (1) Clay models.
- (2) Wooden models (made in school shop).
- (3) Paper models (supplied by teachers).
- (4) Drawing boards, T-squares, rulers.

One teacher has added to the above:

- (5) Eight easels (made in workshop).
- (6) Six trays (made in workshop).
- (7) Five large bulletin boards (made in shop).
- (8) An assortment of bottles, jugs, vases, etc.

All the teachers properly criticize the inadequacy of these equipments. Here is a schedule of their wants:

- (1) Shades adjustable at the top as well as at the bottom.
- (2) Model stands.
- (3) A sink and running water for color work.
- (4) Adjustable drawing tables and stools.
- (5) Sets of mechanical drawing instruments.

3. Supplies. Some teachers are satisfied and some are not. Among the wants recorded are these:

- (1) Colored charcoal paper for rapid sketching by teacher and children;
- (2) Large gray manilla paper, 19" by 24" for use of teacher;
- (3) Prompt delivery;
- (4) Small sponges for cleaning paint boxes;
- (5) Pieces of chamois for making erasures on charcoal drawings;
- (6) Paper and chamois stumps for charcoal work, and stump powder;
- (7) Tempora water colors;
- (8) Individual sets of colored crayons;
- (9) Scissors.

4. Course of Study. Of the sixteen teachers reporting, eight have followed the prescribed course without modification; two have supplemented it with additional exercises; five have made modifications under the advice of special teachers of drawing, and one—a teacher of trade drawing—has made his own course, under the direction of the principal.

The modifications consist of a condensation of the material on account of a reduction in the time allowance.

The course was supplemented in the following ways:

- (1) Studies of animal life in the Zoo. One class made eleven trips in one term for sketching animals.
- (2) Landscape sketching. Frequent trips to parks and fields for this purpose.
- (3) Use of copies of landscape forms, animals, illustrations, posters, etc.
- (4) Study of poster advertising.
- (5) Elementary design.
- (6) Advanced pupils organized into art clubs for work in charcoal and water color.

Trade Drawing (10 weeks)

- (1) Problems to illustrate essential definitions.
- (2) Laying out the sheet—border and cutting lines.
- (3) Lettering, figures, fractions.
- (4) Alphabet of lines—straight line work.
- (5) Basket-weave—straight line work; measurements and use of triangles.
- (6) Application of basket-weave; exercise for drawing lines of definite length.
- (7) Box made of solid block, sides and bottom half inch thick; three views and isometric; completely dimensioned.
- (8) Rectangular object like inverted T, 3 views and isometric, completely dimensioned.
- (9) Rectangular object, 3 views and isometric, completely dimensioned.
- (10) Assembly drawing of box, 5 pieces; 3 views and isometric.
- (11) Object with oblique surfaces; 3 views and isometric.
- (12) Same.
- (13) Curved work, use of instruments.
- (14) Cylindrical object; 3 views and isometric.
- (15) Same.
- (16) Cast-iron bracket; 3 views and isometric.

5. Handicaps

(1) Inadequate seating capacity, two children being required to sit in one seat; (2) Traveling from room to room instead of having a specially equipped studio; (3) "Discontinuous work," that is, assignment of children for thirteen weeks, then sending them to some other activity (this complaint comes from a number of teachers); (4) Two or more teachers occupying the same room; (5) Short periods; (6) Lack of storage room; (7) Stair duty (shortens period by ten minutes).

6. Grades (1A-8B).

NATURE STUDY

1. Aim. As conceived by the teachers of the subject, the composite aims of nature study comprise the following items:

(1) To cultivate a love of animal and plant life. (~~This is expressed in various terms, such as~~ *interest, desire to know, appreciation, kindness to animals, sympathy, etc.*).

(2) Development of the powers of observation; imagination; judgment.

(3) Correlation with geography, art, and language.

(4) Information about common things in the child's environment, including the interdependence of man and nature.

2. Equipment. This varies in different schools. Some have as yet no special equipment at all. In two or three cases nature study is taught in the science room, which is equipped with demonstration table and water and gas attachments. Most of the teachers have—

(1) A fresh water aquarium.

(2) Growing plants.

(3) Specimens, including shells, coral, moss, nests, wood.

(4) Sets of specimens from the Museum of Natural History (which may be had for the asking).

3. **Supplies.** Many teachers say they have none, by which they mean that the board of education furnishes none. Of the needs recorded the following are examples:

(1) Charts of animal and plant life (these are on the list); (2) Metal trays for growing plants (can be made by our sheet metal shop); (3) Magnifying glasses for use of children; (4) Loose-leaf note books; (5) Stereoscopes and stereographs; (6) Aquarium; (7) Terrarium (can be built by manual training shop); (8) Test tubes, bottles, thermometers, iodine, etc. (these are on the list.)

It is of course the intention of the board of education to give these teachers all the equipment and supplies needed for the best work.

4. **Course of Study.** Most of the teachers have followed the course of study prescribed for ordinary schools. Others have supplemented the course by dramatizations, talks on specimens brought in by children, etc. One teacher used Gulick and Jewett's "Town and City" as a text for a course in sanitation and hygiene in the sixth year, for which grade no official course of study exists. In another school the nature study of the fifth year was reviewed and extended in the sixth year. In one case an elementary course in agriculture was devised, including the following topics:

(1) Origin of soil; (2) Use of soil; (3) Tillage of soil; (4) Moisture of soil; (5) What plants do; (6) Classes of plants; (7) Food of plants; (8) Color of plants; (9) Motion of plants; (10) Plants and their partners.

In another school this procedure obtained: The prescribed course of study was planned for a period of

about one hour a week, and as each one of the classes receives instruction for forty-five minutes a day every day in the week, the course is inadequate. Therefore the course in each grade was supplemented by topics taken from higher grades. Also specimens brought in by the children were studied. One lesson a week was given to silent reading, followed by discussion. Once every two or three weeks the children devoted a period to *asking each other questions about things they had seen.*

5. Handicaps:

- (1) "Have no room of my own; specimens and pictures must be carried about."
- (2) "Have too many different children."
- (3) "Some subjects not interesting to children; reproduction not interesting."
- (4) "Need funds to buy supplies from day to day."

6. Grades (1A-6B).

SCIENCE

One of the fundamental differences between the duplicate school and the ordinary school, is in the teaching of science. Science teaching in the elementary school, in spite of notable recent improvements through the nature-study movement, is still exceedingly unsatisfactory. The chief difficulty has been the matter of teachers and equipment. The science teacher, to be successful, must be an expert. If he is an expert, he will demand opportunities to teach by the heuristic method. But this means one of two things: either nature must be brought into the classroom, or the child must go to nature. Under the class system of teaching neither procedure is possible. The school board cannot afford a science equipment in every room; and even if the expense were

not prohibitive, such a plan would be a foolish waste of money. Neither is it possible for all teachers to do excursion work on a large scale.

By departmentalizing the instruction one or two thoroughly equipped laboratories may be provided for real science teaching, and instructors properly trained can do the work.

In New York we make a distinction between "science" and "nature study." Nature study is provided by the syllabus for the first five grades, while elementary science is given in the last two years. Nature study is more or less informal and has no equipment provided for it. It is supposed to be done by the method of observation; but frequently it is a mere matter of telling, if it is not neglected altogether. It has ends other than those of science, such, for example, as the love of nature, the appreciation of the art side of nature, its correlation with literature, etc. Science is taught in a room provided with a demonstration table containing gas and water attachments. There are also certain supplies provided for making physical experiments.

The science room, however, is by no means universal. Many schools do not have departmental teaching in the upper grades, and these could not properly use a science room if they had one.

In the duplicate school the distinction between science and nature study is not so sharply drawn. Both are taught by experts, and both have or will have special equipment. Hence, both employ the method of science.

1. Aim. Among the aims of science teaching enumerated by teachers of the subject are these:

- (1) To give the pupil some knowledge of the laws of nature; and consequently—

(2) To enable him to explain some of the ordinary phenomena of his environment.

(3) To arouse an interest which will impel the pupil to continue his investigations after school days are over.

(4) The application of the principles of common machines, devices, and instruments which the pupil finds in his daily life.

(5) To enrich his fund of knowledge and enlarge the scope of intelligence.

(6) To develop the power of oral and written expression by the delivery of lectures on current scientific events and written reports on experiments performed.

(7) To correlate with science mechanical and illustrative drawing as a further means of expression.

(8) To develop the scientific spirit and habit; logical reasoning on established facts.

2. **Equipment.** A science laboratory in Gary, Indiana, has equipment for individual experiments by pupils. In New York the duplicate schools have thus far made use of the science rooms as they found them; that is, with demonstration table for the teacher only. The ingenuity of teachers, however, has in some cases, overcome the handicaps of equipment by the group method of instruction. In one school, for instance, half a dozen groups may be found at work in different parts of the room, each engaged on a different problem. The older children make the experiments, the younger are observers and helpers. They all develop a very marked degree of initiative, interest, and power of expression.

Here is a list of articles supplied in an ordinary science room:

(1) Apparatus for demonstrating the mechanical powers, pressure of liquids, and the principles of sound and light; (4) Static electricity outfit; (5) Wet cells; (6) Dry cells; (7) Bells; (8) Apparatus for

magnetism; (9) General electrical equipment; (10) Projecting lantern or balopticon.

One teacher reports the need of the following in addition to the above list:

1 Transformer; 6 Electromagnets; 3 Telegraph sets; 2 St. Louis motors; 3 doz. Push Buttons; 1 Magneto; 2 Galvanometers; 3 Voltmeters; 3 Ammeters; 1 Telephone transmitter; 9 Tables (these are being built in the carpenter shop).

Another wants an assortment of cheap tools to illustrate the principles of machines, a cheap pump or two, a violin, a collection of mechanical toys, electrical devices.

3. Supplies. No clear distinction is made between equipment and supplies. However, here are some things needed: A large supply of rubber and glass tubing; Florence flasks; thistle tubes; test tubes; and dry batteries. One teacher has no lantern.

4. Course of Study. Some schools have confined themselves to the experiments prescribed by the syllabus; others have completed these and gone far beyond. One reports as follows: "Static electricity has been omitted, as it has no practical bearing on the electrical world or the child's future. In addition to the voltaic cell, which is seldom used, we include various commercial types, such as Carbon Cylinder, LeClanche, Gravity, Bunsen, Samson, and Gordon. We have also included these topics: Rheostat, Induction Coil, Transformer, Wiring Bells, Copper Plating, etc. All abstract experiments were omitted. Instead of levers, the scientific study of various types of lever-arm scales has been substituted. Gravity is studied by means of scales depending on that principle for their operation. An attempt is made to

train the motor sense in judging weight. A concrete basis is thus given to the abstract mathematical tables of weights and measures."

Another teacher says: "As no course of study exists for science in the 5th and 6th years, I have devised one. This course treats of the chemistry of air, including a study of oxygen, nitrogen, hydrogen, etc., sources and uses of each."

In another school the 6th year science is closely related to civics, thus:

- (1) Overcrowding of population.
- (2) Tenement House Department—its work.
- (3) Use of alcoholic liquors—results—prohibition.
- (4) Unclean streets—results.
- (5) Work and methods of Street Cleaning Department.
- (6) Disposal of city waste.
- (7) Parks, playgrounds, baths, and beaches.
- (8) Fire prevention—work of Fire Department.

5. Handicaps. Several teachers find fault with the periodic method of assigning children to science. They think better results would be obtained by continuous study. While a pupil is in science he recites every day in the week; after thirteen weeks, or some other fixed period, he goes to another activity like drawing or shop. To make science teaching continuous, it would be necessary to limit the number of recitations to one or two per week.

Another says science "used to count one-twentieth toward a pupil's promotion; now it counts only one one-hundredth."

This is a matter within the principal's control and is therefore easily remedied.

One is annoyed by insufficient equipment and two report no handicaps.

6. **Grades.** Some schools have limited the work to the seventh and eighth grades; others go down as far as 5A. The intention is to give the work to children of the last four years, and to give all the rest nature study.

SEWING

1. **Aim.** The object of this activity is formulated collectively by the teachers in charge as follows:

(1) To have a pleasant place to come to. (Making the classroom attractive is no small part of success in teaching.)

(2) To interest children in their work so that they may do it joyfully after school is over.

(3) To teach the making of garments that may be used.

(4) To teach the selection of materials and develop taste in decoration of dresses.

(5) Ethical aims; neatness, accuracy, economy, originality, patience, perseverance.

(6) Summary: "We are trying to develop careful, economical, self-reliant needlewomen, independent in the matter of making their own clothes."

2. **Equipment.** A typical equipment is as follows:

6 New Home Sewing Machines.

10 Small tables.

42 Sewing chairs.

15 Lap boards.

1 Movable blackboard.

1 Set of lockers.

6 Stools for machines.

1 Large 15 ft. cutting table.

2 Screens.

6 $\frac{1}{2}$ doz. Scissors.

$\frac{1}{2}$ doz. Shears.

8 Buttonhole scissors.

- 2 doz. Emery bags.
- 1 Blackboard ruler.
- 1 Pair blackboard compasses.

3. **Supplies.** Some schools are not pleased with the supplies furnished. For instance: "The supplies were not adequate in kind or quality. The materials were too coarse and cheap to enable us to sell garments for a price which would pay for the necessary labor. The laces and ribbons were not suitable. The lace was too wide and cheap, the ribbons were too vivid in color. The consequence was that instead of decorating garments, these trimmings deformed them, and thus defeated our esthetic aim."

One teacher says the scissors are of a poor quality and require frequent repairing; the pins are often rusty; thimbles blacken the finger; thread is inferior, especially for machines, spools often containing short pieces of thread.

4. **Course of Study.** One school followed the suggestions of the sewing supervisor; three followed the official course without modification; two modified the course or substituted an original one. One teacher who departed from the regular syllabus says:

"I did not follow the course of study, but allowed each girl to progress as fast as she was able to go. In other words, the teaching is individual. If a sixth-year girl can do eighth-year work, I give it to her. This is an improvement upon the regular course which keeps the class to the speed of the slowest girl. The plan I follow generally is:

5th Year

- (1) Hand sewing; various stitches; fancy aprons.
- (2) Machine practice.
- (3) Children's petticoats, mostly hand made.

6th Year

- (1) Machine practice.
- (2) Night gown.
- (3) Simple one-piece dress.

7th Year

- (1) Play dress and bloomers.
- (2) Rompers.
- (3) Chemise, embroidery design.

8th Year

- (1) Middy blouse.
- (2) Simple dress.
- (3) Chemise.
- (4) Embroidery.

Two other schools have similar courses. One of these uses the official course for fifth and sixth years.

5. Handicaps:

(1) Size of classes and lack of cotton. (One teacher had register of 50.)

(2) Too frequent reassignment; many children unable to complete garments.

(3) More than one teacher using a room, so that it was difficult to prepare work in advance.

(4) Not having a fixed room for the work (in the lower grades, sewing teachers sometimes go to the rooms where children are). "Carrying around bundles of cord and raffia all day is tiresome."

6. Grades. Sewing is prescribed for all grades after the third. The formal work with machine sewing is usually reserved for grades 5A to 8B.

FARMING

Only one school has this activity; namely, 45.

1. Aim. To teach the rudiments of horticulture and agriculture.

2. **Equipment.** A greenhouse (constructed by the boys of the carpenter shop), heating apparatus, cold frames, supply of garden tools, a garden, and a five-acre farm.

3. **Supplies.** Not adequate. Need soil for the growing of plants and seeds in winter in the greenhouse, fertilizers, coal for greenhouse, books on gardening and farming, encyclopedia of agriculture, encyclopedia of horticulture.

4. **Course of Study.** Time allowance, 4 eighty-minute periods a day. Topics:

- (1) Preparing soil for planting.
- (2) Sowing seeds.
- (3) Planting plants.
- (4) Studying nature and uses of plants and seeds.
- (5) Hoeing and weeding.
- (6) Diseases of plants, and remedies.
- (7) Insect pests and how to exterminate them.

5. **Work Accomplished:** The children have planted the whole garden with seeds and flowers. This garden is certainly a credit to the school.

Vegetables: Beans, beets, cabbage, corn, cauliflower, celery, kohlrabi, lettuce, onions, parsley, pumpkins, radishes, squash, spinach, tomatoes, egg plant.

Flowers: Geraniums, fuchsias, verbenas, carnations, nasturtiums, sweet peas, coleus, snapdragon, ageratum, calendula, astors, zinnias, balsams, petunias, dahlias, candytuft, vinca, salvia; which in due time will mature and produce considerable revenue.

So far this season we have sold one dollar and eighty cents' worth of spinach, onions, and radishes, which amount was turned over to the children's welfare fund.

The farm has sold several hundred dollars' worth of products.

6. Handicaps:

- (1) Necessary funds to finance the activity.
- (2) Improvement of property by the board of education.

Thus far the garden has been on private property, hence the board could spend no public funds on same. The garden, however, has now been purchased by the city. The farm is a part of Bronx Park.

7. Grades (5B-8B).**MILLINERY**

1. Aim. Two schools teach millinery. The aims formulated by the teachers may be summarized thus:

- (1) To educate girls for everyday life.
- (2) To form habits of neatness, industry, and thrift.
- (3) To enable girls, possibly, by and by, to earn a livelihood in the trade.

2. Equipment. One school has

- 5 Work tables.
- 6 Hat stands.
- 1 Electric iron.

The other has just the ordinary furniture of an academic classroom.

One teacher calls for a pressing board and a steamer for renovating used materials.

3. Supplies. The complaint made by the sewing teachers is here repeated: "The materials sent were too coarse and cheap to sell to advantage. The velvet was a cheap quality of velveteen."

4. Course of Study. There is no official course in existence, so each teacher devised her own syllabus. Here is one of them:

-
- 1st Week: Making work bag.
Making needle case.
Making pads and sticks for trimming.
- 2nd Week: Making different kinds of bandeaux.
Wiring and covering bandeaux.
- 3rd Week: Preparing hat linings:
(1) Straight hemmed lining.
(2) Shirred lining.
(3) Cap lining.
- 4th Week: Making milliners' folds:
(1) Plain fold (narrow).
(2) French fold (wide).
- 5th Week: Making buckram frames:
(1) Simple sailor frame.
(2) Mushroom frame.
- 6th Week: Covering and trimming the frame with materials of the season.
- 7th Week: Covering crown made from buckram.
Making various brim finishes.
- 8th Week: Making flowers from ribbon and silk:
(1) Daisies.
(2) Poppies.
(3) Violets.
(4) Apples, etc.
- Bow making:
(1) Tied bow.
(2) Butterfly bow, etc.
- 9th Week: Making wire frame:
(1) Simple sailor frame.
(2) Wire crown.
- 10th Week: Making mushroom wire frame.
Making turban wire frame.
Wire crown for turban frame.
- 11th Week: Shirring different kinds of materials over wire frame.
Preparing soft top crowns.
- 12th Week: Blocking cape net frames.
Renovating used materials.
- 13th Week: Sewing straw on cape net frames.
Making straw crowns.
Preparing trimmings.

The other one follows:

Spring Term

- (1) Illustration of stitches used.
- (2) Renovating silk, velvet, lace, chiffon.
- (3) Cleaning and pressing felt, straw, beaver.
- (4) Cutting and wiring shaped bandeaux; use of bandeaux.
- (5) Textiles: as velvet, cotton, silk, ribbon, lace—proper method of cutting, joining, and placing on frames with reference to weave, etc.
- (6) Color, contour, and suitability of material.
- (7) Milliner's folds and plain folds.
- (8) Linings: for caps—bias and straight.
- (9) Hemming: roll and straight.
- (10) Making plaits: single box, double box, triple box, side plaiting.
- (11) Making cord: plain velvet, shirred.
- (12) Draft patterns for buckram hats: cut buckram shapes from patterns; wiring and binding edgewire with crinoline and covering frames with straw braid.
- (13) Trimming hats.

Winter Term

Not worked out in detail because the class has been in existence during only one term.

5. Handicaps: One teacher properly asks for better accommodations, because she has no special equipment. The other complains of—

- (1) Too many grades. (5A-8B.)
- (2) Overcrowded groups.
- (3) Delay in delivery of supplies.
- (4) Poor quality of supplies.

LIBRARY

Some of the schools have not yet installed a library I have only four reports. None of the schools are able to use a public library in connection with school work.

Library work is new in the district. In no case has a library been in operation for more than one term.

1. **Aim.** The aims of library work as formulated by the teachers in charge may be stated thus:

(1) To cultivate the reading habit and to encourage reading in public libraries.

(2) To teach good reading methods, e.g., reading to a finish; reading things worth while; acquaintance with standard authors and their works; correct posture; source of light; care of books, etc.

(3) To teach proper use of the library; finding books; use of works of reference.

(4) To supplement work in history, literature, science, geography, etc.

(5) To inspire a love of good literature and cultivate the habit of concentration.

2. **Equipment.** The standard equipment, aside from books, is as follows:

10 Steel sections, each containing six shelves.

8 Tables of polished quartered oak.

64 Chairs.

1 Desk chair.

1 Librarian's desk.

1 Catalogue unit containing four drawers.

The number of books varies. The collection is at present made up of volumes formerly in class libraries, supplementary reading sets, and works of reference.

3. **Course of Study.** None has been provided. Here is one devised by a teacher:

(1) Proper handling of books: how to open a book; place marking; cleanliness, etc.

(2) Classification: finding books on shelves.

(3) Use of catalogue.

(4) Rapid use of dictionary and encyclopedia.

(5) How to find material related to classroom work.

(6) Telling of stories by librarian to introduce special classes of books.

4. Needs. The libraries are not yet completely equipped. Among the recorded wants are the following:

(1) A Dewey decimal classification.

(2) Cutter author's table.

(3) Bulletin board.

(4) Shelf labels with celluloid covers.

(5) More books suitable to the grades using the library.

(6) Window boxes.

(7) A low desk or shelf where books of reference may be consulted.

(8) Some good pictures.

All the schools are short of books. Many of the articles specified above can be made in the manual training shop. Pictures and casts are included in the standard equipment of the library.

5. Accomplished. In the three following paragraphs we have a record of the work done in three schools:

(1) Most of the pupils have learned to read quietly and continuously; the 6B's have had dictionary practice; children have kept records of books read; much supplementary reading in history, geography, science; pupils have read books on Chivalry, Ruskin's "King of the Golden River," "Alice in Wonderland," "Irish Fairy Tales," "Poems of American Patriotism," "Stories from Shakespeare," books on nature, etc.

(2) Forty different classes have been sent to the library for reading periods of fifty minutes daily. During the term there has been a circulation of about 5,000 books.

(3) Pupils of each grade have had the privilege of taking home one book each week, with free access to

shelves for study and research. The circulation to date is 9,000.

6. Grades. The range of grades to which library work was extended in the several schools is as follows: School 1: 1A-8B; School 2: 3B-8B; School 3: 3A-8B; School 4: 5A-6B.

CARPENTER AND CABINETMAKER

Public School 45 has a carpenter shop and Public School 53 has a cabinet shop. A cabinetmaker is one who makes household furniture. A carpenter does the framing and other heavy woodwork in the construction of houses and ships. A joiner does the lighter work of building, supplying doors, casings, and finishings. In the United States the work of a carpenter is commonly understood to include that of the joiner. Hence it will be seen that carpentry implies a broader training than cabinetmaking. A carpenter shop is more useful in the maintenance of the school plant than a cabinet shop.

1. Aim.

(1) Through the use of tools to arouse a desire to create something.

(2) To develop a sense of responsibility.

(3) To interpret and apply plans.

(4) To make minor repairs about the building, such as fixing locks, doors, seats, tables.

(5) To give the boy an opportunity to find out whether he would like to take up the activity as a trade.

2. Equipment. The carpenter shop is very inadequately equipped. Its habitat is in the cellar. We are building an addition to the school, which will furnish a decent place for the carpenter. The equipment at present is limited to the following:

A regular supply of carpenter's tools, two benches supplied by the board of education, three made by the boys, three tool closets, three lumber racks, a wood trimmer, and a foot-power fret saw.

The cabinetmaker has the equipment described under the head of Manual Training, plus five motor-driven woodworking machines.

3. Course of Study. There is no official course. The carpenter gives the boy an opportunity to learn the use of the tools, to learn to make and read working drawings, and to become familiar with the main features of building and construction work.

The cabinetmaker selects problems suitable to the grade and age of the pupil. He gives lectures on all tools and on woods, stains, and polishes.

4. Results. The crowning achievement of the carpenter for the year is the construction, with boy labor exclusively, of a greenhouse for the school sixty feet long. Besides this, he has done innumerable small jobs about the building.

The cabinetmaker's problems were similar to those of an ordinary manual training teacher, because his machinery has not yet been set up. He has, however, made school repairs valued at \$210.

5. Grades. Carpenter: 6A-8B; Cabinetmaker: 4B-8B.

MUSIC

Music is taught in all cases by regular grade teachers who have musical taste and talent.

1. Aim. This is expressed by four teachers as follows:
 - (a) "To develop and improve tone quality.

- (b) "To teach rote singing and sight reading.
- (c) "To cultivate a taste for good music."

A very successful music teacher puts it thus:

- (1) "To enable the student to read music.
- (2) "To get him to acquire the habit of part singing.
- (3) "To instil a love for good music."

2. **Equipment.** For classroom teaching there is as yet no special equipment except the usual music books, charts, etc. For auditorium singing the equipment consists of a piano, a victrola, a player-piano, books, records, etc.

3. **Course of Study.** All the teachers report that they are following the official course of study except one. She, however, uses a schedule of work supplied each week by the supervisor of music.

4. **Results Accomplished.** One of the best teachers reports the following work accomplished in one term:

- (1) Classroom work (7A-8B):
 - (a) Ability to recognize keys from signatures.
 - (b) Ability to place *do* on the staff in each key.
 - (c) Major, minor, and chromatic scales sung.
 - (d) Dictation, particular attention to chromatic tones.
 - (e) Five four-part songs:
 - 1. May Pole.
 - 2. In Old Madrid.
 - 3. John Peel.
 - 4. Hunting Song.
 - 5. The Heavens are Telling.
- (2) Auditorium—Six four-part songs:
 - (a) All Through the Night.
 - (b) Blue Bells of Scotland.

- (c) Joy! Joy! Freedom to-day.
- (d) Vesper Hymn.
- (e) Oh, Worship the King.
- (f) Kingdoms and Thrones.
- (g) Six Patriotic Songs (Unison):
 1. American Hymn.
 2. Dixie.
 3. Maryland! My Maryland!
 4. Old Glory.
 5. Old Folks at Home.
 6. Home, Sweet Home.

- (3) Lectures: Lives of Composers.
- (4) Orchestra.
- (5) Illustrations on Victrola.

5. Handicaps. In this activity, judging from these reports, there are more difficulties to hamper the teacher than in any other department. Here are some of the complaints:

- (1) "Noises from the playground."
- (2) "Noises from street traffic."
- (3) "Going from room to room."
- (4) "Classes too large."
- (5) "Children look upon music as a bugbear; hard work to get boys to study exercises; not enough books; three sets of classes in one term; very monotonous to begin at the beginning every six weeks."
- (6) "Lack of concentration, due to changing rooms, carrying clothes, sharing seats and books, loss of time, problems of discipline."
- (7) "Bulky charts have to be carried about."
- (8) "Time too short."
- (9) "Teaching four grades requires a great deal of preparation."
- (10) "Teaching in a room next to auditorium where 200 children are singing."

This is rather a formidable list. Conferences have already been held for the purpose of curing the ills complained of. The only teacher who records no handicaps

is the one whose fine achievements are listed under "results."

MANUAL TRAINING

There are manual training shops in all the duplicate schools, but in Public School 53 this work is "prevocational" in character, and in Public School 45 there is a carpenter shop in addition to the manual training shop. In this connection I shall therefore consider only the five manual training shops in Public Schools 6, 28, 42, 44, and 45, the cabinet shop and carpenter shop having already had separate treatment.

1. **Aim.** The various aims enumerated by the teachers may be summarized thus:

- (1) Motor expression and industrial insight.
- (2) To represent, in as practical a way as possible, the building and other constructive interests we see about us every day.

It is gratifying to note that each of these men has the social point of view, and understands that construction in wood is just a part of "education," is a mode of expression, and aims to adjust the pupil to his industrial environment.

2. **Equipment.** The typical equipment consists of the following:

15 double benches, each equipped with the following tools:

Jack plane.	1-inch chisel.
Smoothing plane.	1/2-inch chisel.
Hand saw.	1/4-inch chisel.
Bock saw.	Marking guage.
Claw hammer.	Screw driver.
Mallet.	Sloyd knife.
Bench hook.	Try-square.
2-foot rule.	Sandpaper.

There is also a general closet containing bits, braces, bevels, etc.

3. **Course of Study.** There is a prescribed course of study in this subject, but fortunately this allows wide latitude as to the objects to be constructed. It is thus possible to use the course in a duplicate school without doing violence either to the course or to the theory of the school.

4. **Results.** In one shop only pupils of the seventh and eighth grades have been taught. In others the sixth grade is included, and in several the fifth also. The problems are largely individual. Here is a specimen of the kind of things that were constructed during last term: desks, tables, chairs, costumers, music cabinets, music stands, benches, china cabinets, hat stands, bulletin boards, 100 picture frames for the art department, magazine racks, blacking stand, electric droplight, sewing stand, umbrella stand, cement arches, multiple truss, king truss, suspension bridge, window seats, pencil sharpeners, key racks, spool holders for the dressmaking classes.

5. **Handicaps.** No serious difficulties are reported by any of the teachers. Several of them wish they had power machines; that is, they would like to convert their manual training shops into carpenter or cabinet shops.

PLAY AND PHYSICAL TRAINING *Paper*

1. **Aim.** It is exceedingly interesting to compare the aims of this activity as stated by different teachers. Here is one, for instance, who states the matter tersely thus: "To allow the child to develop physically, mentally, and socially through play activity." Another in the same

school puts it this way: "To obtain good posture; to make pupils alert, accurate, graceful in movement, vigorous, and able to endure; to teach normal play forms for after-school use; and to give girls the fullest enjoyment and benefit of appropriate athletic play and folk dancing." Still another in the same school varies the statement in this fashion: "To increase the social and physical education of children; to provide an enriched curriculum through play and recreation; and to maintain a high standard of health and efficiency."

It is evident from these several formulations that this principal has picked the right teachers for his playground, for they have admirably stated the correct idea of play and physical training.

We have, however, equally successful expressions of the aims of physical education from other schools. Here is one taken from the combined report of two teachers:

"The fifty-minute period is divided between formal physical training and play; therefore, we shall outline the aim under separate heads, as follows:

"1. *Physical Training*.—The aim has been to secure immediate response to commands; to secure concerted movement of large masses with the least possible noise; to develop the power of inhibition; and the desire to co-operate on the part of the pupil.

"The psychological aim has been to develop automatic co-ordinations with the purpose of making certain movements objective rather than subjective; to promote alertness, precision, speed, and grace; to develop through conscious effort the habit of good posture.

"The physiological aim is the correction of faulty posture while standing, marching, or exercising; the improvement of health through hygienic exercises.

"2. *Play*.—The aim here is fundamentally recreative and hygienic; to release pupils from the mental and

physical strain of formal work; to secure the happy abandon of street play with the element of lawlessness eliminated; to develop an ideal and habit of fairplay and team-work; to subordinate the individual to the interests of the team."

All of which, in my judgment, is admirably put.

2. Equipment. The equipment varies in different schools and is in many cases incomplete and inadequate. Among the wants recorded are the following:

(1) Basket balls and goals.

(2) Asphalt floor should receive a dust-holding dressing.

(3) Wands, dumb-bells, Indian clubs, swing ropes, jumping mats, jumping standards, handballs, foot balls, jumping ropes, horse-reins, quiet games (such as checkers, dominoes, spelling boards), tables, benches, cabinets, desks and lockers (for teachers), and a phonograph.

As some of our schools have all that is here enumerated and more, there is no good reason for the neglect indicated. But in a large complex organization like the New York school system, where many different persons and bureaus must co-operate to buy even a baseball, such lapses will now and then occur.

Five of the schools included in this report have gymnasias for formal physical training work, properly equipped, in addition to the indoor playground, which, in New York schools, usually consists of the ground floor of the building. Public School 45 has just received an appropriation of \$140,000 for the purchase of a garden and a large out-door playground. A similar playground has already been purchased for Public School 53. Public Schools 28 and 44 should have similar extensions of their play space. Public School 42 uses Claremont Park for outdoor play.

3. **Course of Study.** As a rule, the regular course of study is followed. But, as the children have more time and also more space and apparatus for play than is the case in ordinary schools, the prescribed course is employed as a minimum, and is modified and extended as circumstances may warrant. Thus: "Since the present arrangements bring boys of six grades into the playground at once, a course of study has been devised by combining the more difficult exercises of the lower grades with the simpler exercises of the higher grades." Two others report: "We have not modified the course of study." One says: "In addition to the regular class drills given at the beginning of the periods, special advice and exercises are provided. Anaemic pupils and those suffering from malnutrition receive advice about diet. Short talks on training for athletic events are frequently given." Perhaps the following statement is typical of the group of schools: "The regular course of study is used in the gymnasium, but is supplemented by formal work, dancing, and games in the yard."

4. **Results Accomplished.** By their fruits ye shall know them. Therefore, the supreme question is, "What has the play feature of the duplicate schools done for the children?" That it has made them happy, there can be no serious question. That it has improved their health is presumptively true and is attested by several principals, doctors, and nurses. This matter is to be tested scientifically by the Physical Training Director during the coming year. Meanwhile let us hear what the teachers say:

- (1) Better discipline; greater alertness; better posture; increased desire for posture.
- (2) Better sportsmanship in play.
- (3) Learned many new games and dances.

(4) The boys of the first five years were able (in one school) to qualify for tests in chinning for borough championship, and the classes of Grades five, six, seven and eight qualified without an exception.

(5) A new spirit of self-reliance and self-control, and quick adaptability to conditions.

(6) Children with physical defects are receiving correctional exercises.

(7) Play in parks has been congenial to children and less of a strain on teachers.

(8) Pupils have learned something of squad organization under squad captains for play purposes; have realized that others have rights, even in play; and have been taught to respect those rights.

5. Handicaps. Lack of adequate equipment and supplies is mentioned as the chief handicap by twelve out of seventeen play teachers. Here are a few typical statements:

(1) Pillars should be padded to avoid accident.

(2) Lack of adequate space and equipment.

(3) On stormy days only the inside yard can be used, consequently there is uncomfortable crowding.

(4) A mistaken notion among pupils that they were not to be subject to any control whatever under the new system.

(5) Unsanitary toilet.

(6) Too few teachers.

(7) Children in the lower grades (in one school) have two fifty-minute periods. This is too much play.

(8) Presence of first-year children with their singing games while upper classes are doing formal work.

Many of these criticisms are just and call for remedies. It is essential to provide proper play space for one division of a school, consisting usually of one-sixth or one-eighth of the children. Not one of the evils mentioned is inherent in the system, but most of them are due to sudden reorganization and lack of experience.

COMMERCIAL WORK

We have at present three schools with a commercial department. These are 6, 44, and 53.

1. **Aim.** One teacher aims to teach typewriting, book-keeping, letter-writing, bill-making, filing. Another has aims a little more specific.

1. *Commercial Arithmetic.*—The application of the child's knowledge of arithmetic to practical business work by the use of drills in rapid calculation, short methods, business forms.

2. *Commercial English.*—Common business abbreviations, spelling, meaning and use of business terms; composition of various types of business letters.

3. *Commercial Geography.*—To train powers of observation; to familiarize the pupil with the commercial geography of New York City and environs.

4. *Typewriting.*—To lay the foundation for future study of the subject.

2. **Equipment.** For the present the usual equipment of the commercial room in a duplicate school of New York is as follows:

10 Underwood typewriters, No. 5.

10 Tables and stools.

20 Stationary desks and seats.

3. **Course of Study.** Thus far the board of superintendents has provided no course of study. This gives the principals and teachers indefinite latitude, to experiment and adapt the work to the needs of pupils. In two schools only the children of the seventh and eighth grades are sent to the commercial department; but in the remaining school the commercial group includes grades 5A-8B. It is doubtless desirable to permit children of lower grades from twelve to fourteen years of age to get elementary commercial training. One of the commercial teachers,

who has made a special study of this work, has devised the following tentative course of study for his school:

7A. Business arithmetic, short methods in the four rules, and business fractions; forms, bills, receipts, checks.

7B. Business arithmetic, as in 7A; interest; bank discount and discounting notes; forms—bills, receipts, checks (with endorsement, stops, etc.), notes (receivable, payable, protests); bookkeeping—simple personal cash accounts.

8A-8B. Typewriting (touch), bookkeeping (elementary); business arithmetic to correlate with bills and accounts, with special emphasis on discounting interest-bearing notes.

It will be recalled that the children rotate among the special activities of the school, so that in no case do they pursue these studies for more than thirteen weeks at a time. But while they do receive instruction they have it every day.

One teacher complains that ten typewriters are not enough; but another shows how to make use of this equipment, thus: "The commercial room has ten typewriters and twenty bookkeeping desks. Thirty pupils are thus accommodated at one time. While ten are working at their typewriters, twenty are at their books, and at the end of a given period one-third of the class go to the typewriters and another third go to the books."

4. Results. In one school the teacher has accomplished these results during the last term: "In typewriting children have learned the uses of the different parts of the machine, two rows of keys, and the use of the shift key for capitals. They were also able to typewrite copies of *Instructions for Field Day*. In bookkeeping they learned the necessity of keeping books, the day book, posting, cash book, making statements. They have learned

about the different kinds of business letters, their characteristics, parts, and essentials. They know different types of bills and how to make out and receipt the same. In the matter of filing they have filled out and catalogued blue and white pupils' record cards of the school. They have also made several sets of indexes for the record card files."

5. **Handicaps.** Among the handicaps mentioned are the following: (1) Only ten typewriters (I have quoted a reply to this criticism), (2) Some of the children are too young to grasp the meaning and importance of the work. The teacher who makes this complaint suggests that only children of the eighth grade be sent to the commercial room. Manifestly, we must except from this suggestion over-age pupils in lower grades. In one school children remained in the commercial room only four weeks, and the teacher justly mentions this as one of her handicaps. This type of school is so new to us all that we shall probably continue to make many mistakes before the path of wisdom is discovered.

This section of the report was handed for criticism to a teacher of commercial subjects in a Philadelphia high school. The following comments made by her deserve serious consideration, and I am, therefore, including them as a basis for conference discussion:

"Typewriting.—My experience has convinced me that one teacher cannot do justice to a class divided into typewriting and bookkeeping sections, the two sections being conducted simultaneously. If correct habits are to be established in typewriting, the constant supervision of the teacher is imperative. Even shields will not insure an accurate touch writing habit, nor prevent a lapse into habits of carelessness that it will require years to overcome.

"Aside from this feature of supervision, the class in typewriting cannot hope to get adequate practice while a bookkeeping section is being taught. The teaching of bookkeeping requires constant blackboard demonstration, especially with youthful beginners; and even were a teacher willing to shout her explanations above the din of ten pounding machines, she could not be assured that all of her pupils would profit by instruction given under such distracting conditions.

Remedy.—Equip one room with as many typewriters as there are children in the largest class. The desks holding these machines should be provided with the "disappearing" device in order to leave a flat surface for desk work. Such a classroom may thus be used alternately for bookkeeping and typewriting, the two subjects being handled by the same teacher."

MACHINE SHOP

Public School 42 possesses the only machine shop thus far installed in the duplicate schools of The Bronx.

1. Aim. "To train pupils in the practice of using machine tools; also in the filing, fitting, and assembling of machine parts; necessity for precision in work; thinking for one's self."

2. Equipment.

- 4 Engine lathes.
- 2 Speed lathes.
- 1 Shaper.
- 1 20-inch drill-press.
- 1 Sensitive drill press.
- 1 Power saw.
- 1 Wet grinder.
- 1 Dry grinder (2 wheels).
- 1 Work bench.
- 10 Vises.
- 1 10-h.p. electric motor.

Small tool equipment as follows: Calipers, steel rules, combination sets, V-blocks, drills, reamers, parallel clamps, micrometers, surface-plates, pliers, hammers, etc.

The following articles are needed in addition to the above stock of supplies:

2 dozen round files, $\frac{1}{4}$ -inch diameter.

2 " " " $\frac{1}{2}$ - " "

1 " half round files, 6 inches long.

1 " " " " 8 " "

1 " " " " 12 " " (all to be of the variety known to the trade as bastard files), 63 lb. cold rolled steel.

No. 8, Brown and Sharpe gauge (sheet steel).

3. Course of Study (unofficial):

- (1) Explanation of parts and uses of machines.
- (2) Practice in the operation of each machine.
- (3) Practice in the use of files in working at a bench.
- (4) Instruction in the use of small tools.
- (5) Care of machines and small tools.
- (6) Lessons in safety.

4. Work Accomplished (one term):

- (1) Repaired power saw in machine shop.
- (2) Repaired throw-off lever bracket of printing press by screwing two steel laps to the bracket to hold same together.
- (3) Manufactured 12 square-hole tap or reamer wrenches, holes varying in size from $\frac{1}{4}$ -inch to $\frac{5}{8}$ inches.
- (4) Full size floating rear axle for automobile.
- (5) 12 flat double-end wrenches fitted to standard size nuts from $\frac{1}{4}$ -inch to $\frac{3}{4}$ -inch.
- (6) 1 miniature cannon (muzzle-load) on wheels, cannon 11 inches long, made from $3\frac{1}{4}$ -inch forged steel.

5. Suggestion. This teacher knows of no handicaps. He is of the opinion, however, that the period is a little

too short. In his school shop periods vary from 75 minutes to 85 minutes. If the fifty minute period were adopted the shop time would be 100 minutes a day. The grades taught are 6B to 8B.

POTTERY

There is only one pottery in the district, and this is located in Public School 45. Our potter is from the Five Towns in England, made famous by Arnold Bennett. His work is supplemented by a sculptor, employed privately, who is an artist of no mean ability. This is the way the potter expresses his—

1. Aim. "To arouse and encourage the creative instinct; to develop the individual and give him an opportunity and necessary training for his growth; through his hands and eyes to teach him beauty of form evolved from a common substance, leading to appreciation of beautiful work in other materials."

2. Equipment. Modeling tools, brushes, scales, small decorator's wheels, small color wheel, gas-heated kiln. For advanced pupils the equipment should (but does not now) include: Power-driven wheel and jigger, power-driven mill, foot-lathe for turning, damp box for keeping ware in condition.

3. Course of Study (not official):

(1) Manipulation of clay in its various conditions, concurrently with the forming of pieces by the coiling process.

(2) Forms made usually follow outlines supplied by teacher.

(3) At irregular intervals pupil is left to his own devices to originate shapes.

(4) Decoration in colored clays.

- (5) Designs in super-imposed clay.
- (6) Clay cut away from design, leaving it in relief.
- (7) Process of casting in plaster moulds.

4. **Work Accomplished.** There are about 500 pieces ready for the kiln, including a number of sets ordered by the board of education to serve as drawing models in other schools. In addition, there is a large stock of finished pieces, glazed and fired, on hand for the inspection of visitors.

5. **Handicaps:** "Unless a pupil has natural dexterity of fingers combined with neatness, the period (13 weeks) during which he receives instruction is not long enough for him to attain proficiency. It would be helpful if the teacher were allowed to nominate a certain number of pupils to continue the course for a second term. Provision should also be made to permit the teacher to go to school after school hours, when the management of the kiln makes his presence imperative."

6. **Grades (5A-8B).** I have been much impressed by the success of this class. The joy of the children in the work is obvious. As a form of manual training modeling is fundamental. Making mud pies is instinctive, and our pottery is simply a method of hitching the instinct to the educational chariot.

SHEET METAL SHOP

There is one such shop in the district at present. This is in Public School 53.

The aim the teacher has in view is manumetal training, "discovering vocational aptitude, giving a wider experience in manual work."

1. **Equipment.** Two work benches, 12 ft. by 4 ft. each with 12 slide drawers for hand tools, and 24 smaller

drawers for children's work. These benches have sheet iron tops to protect them from the flames of 3 gas stoves belonging to each bench. Each of the 12 drawers is equipped with mallet, compass, pliers, try square, hand shears, hammer, scratch awl. A general tool closet contains punches of various sizes, solder, salamoniac, rosin, tanners, scale rules, large cutting shears, circular and straight. There is one painting and staining bench, zinc covered, containing accommodations for storing paints, brushes, etc. There are also the following:

- 1 Cutting or squaring shears.
- 1 Grooving machine.
- 1 Rolling machine.
- 1 Beading machine.
- 1 Elbow-turning machine.
- 1 Double seaming machine.
- 6 Iron vises.
- Various sizes and kinds of hand stakes or anvils.

2. **Course of Study.** There is no official course of study. Models and problems selected by the teacher were adapted to children of grades 6A to 8B, and included the following:

- (1) Soldering.
- (2) Cutting with hand shears, straight and circular.
- (3) Making small metal boxes.
- (4) Biscuit moulds of various designs.
- (5) Match boxes.
- (6) Drinking cups.
- (7) Book stands.
- (8) Frames for class schedules.
- (9) Roof ventilator.
- (10) Small metal stoves.
- (11) Lectures on all tools and hand machines and various metals and flux for soldering purposes.

3. **Needs.** A boy should have clean hands when he leaves the shop; hence a lavatory is needed in this room.

PRINTING

There are four print shops in the six schools now operating. The reports are here dove-tailed in such a way as to make a more complete exhibit than can be found in any single report. The schools with print shops are 28, 42, 44, 45.

1. Aim. This is what the printers try to accomplish:

(1) Give children an opportunity to discover and develop latent ability.

(2) Afford children an opportunity to find out whether they would like to follow printing as a trade.

(3) Give practical application of English.

2. Equipment. Two Chandler and Price presses; paper cutter; 5 type cabinets, 23 drawers each; 50 fonts of type; 200 lb. 10 pt. Roman; 50 lb. 12 pt. Roman; 50 lb. 8 pt. Roman; lead and rule cutter; 3 fonts labor saving brass rule; 3 rule cases; leads, slugs, and 2 cases for same; 12 drawer filing or stock cabinet; imposing stone; lead and wood furniture; proof press; 12 composing sticks; chases, quoins, etc.

Two shops have stitching machines. Most of the printers say the equipment is a little meagre. They all want more type. One wants more frames, a working cabinet for storing galleys with type-matter, a bank with several letter boards for keeping live jobs, a few more galleys, a metal closet for storing benzine and oil, some more supplies for presses. Another is entirely satisfied with supplies, but has only one press. A third desires the following: About 50 ft. of 1 point hair line brass rule for miscellaneous tabular work (labor-saving brass rule should not be cut); 1 extra rule case for above; 1 galley rack for 12 or more double-column galleys that will facilitate the handling of such galleys at one central point

for make-up, proofing, etc. There should be in each shop a lavatory.

3. **Course of Study.** There is no prescribed course of study. Each school has been left free to devise its own course. Most of the work of the shops is "prevocational," that is, it consists of doing real printing jobs for the school or some one else. The most detailed course is reported by the printing teacher in Public School 28. It is as follows:

COMPOSITION

1. Leads, Slugs, Rules.
2. Furniture.
3. The Case.
4. Straight Matter.
5. Distribution.
6. Display Matter—Reprint.
7. Distribution of Display.
8. Correcting.
9. Setting from Manuscript.
 - a. Advertisements.
 - b. Letterheads, Billheads, Cards.
 - c. Circulars, Pamphlets.
10. Tabular Work.
11. Composition with Cuts.
12. Make-Up.
13. Typographical Construction of the Book.
14. Typographical Construction of the Magazine.
15. Study of Design.
16. Lettering.
17. School Newspaper.

PROOFREADING

1. Proofreaders' Marks.
2. Galley Reading.
3. Advertisements and Commercial Work.
4. Proofreading by Copy.
5. Revising.
6. Page Reading.
7. Stone Proofs.
8. Press Proofs.

9. Final Reading.
10. Proof Criticisms.

STONE WORK

1. Locking Up for Small Press.
 - a. Small Jobs.
 - b. 2-Page and 4-Page Forms.
2. Locking Up for Foundry.
3. Breaking Up for Colors.
4. Imposition.
 - a. Hand Fold.
 - b. Machine Fold.
 - c. Color Forms.
5. Lining Up Sheets.

PRESS WORK

1. Making Ready.
 - a. Small Jobs.
 - b. Pamphlets.
 - c. Halftones.
2. Feeding.
3. Mixing of Inks.
4. Paper.

LECTURE WORK

1. History of Printing.
2. Development of the Industry.
3. Biographical Sketches.
4. Present Methods of Printing.
5. Study of Ink.
6. Study of Paper.
7. Study of Cuts.
 - a. Halftones.
 - b. Electrotypes.
 - c. Stereotypes.

- d. Zinc Engravings.
- e. Wood Cuts.
- 8. State of the Printing Trade.
 - a. Book and Job Office.
 - b. Newspaper Office.
- 9. Opportunities in the Trade.
- 10. Inventions.

FIELD WORK

- 1. Visiting Other Printing Schools.
- 2. Visiting Printing Offices.
- 3. Visiting Electrotpe Firms.
- 4. Visiting Type Foundries.
- 5. Visiting Paper Mills.
- 6. Visiting Ink Factories.
- 7. Visiting Publishing Houses.

4. **Work Accomplished.** In one school the children have printed library cards; envelopes; record cards for two schools; lists of requirements in geography, history, and arithmetic for admission to grade 7A. Another reports: "The printing needs of our school are such as to demand practically the entire product of our press. At present we are engaged on a 40-page booklet of compositions and poems written by school children. We also have in hand our semi-annual school book called *The Children*, which consists of 16 pages and two-color cover design. We have had a few orders from outside people. The fund accumulated is used to meet shop expenses. Accurate record is kept of income and expenditure."

Still another says: "The children have printed 18 jobs (in one term), consisting of cards, spelling lists, poems, proverbs, etc. They have also printed our monthly school journal of 8 pages with cover. One job of 4 pages was printed for the district superintendent. For him also we stitched 3,000 copies of our 8-page circular on grammar."

5. **Handicaps.** "Too many pupils during certain periods. This will shortly be remedied. Boys are the logical pupils."

The shops are open to girls as well as boys. One teacher reports no handicaps, and another needs only a few supplies to complete his happiness.

6. **Grades.** In one school only children of the seventh and eighth grades have been assigned to printing; but in others the fifth and sixth grades are included also.

PERIODS OF ROTATION

One of the characteristic features of the duplicate schools is the rotation of pupils among the several special activities. The object of this plan is to give the child as varied an experience as possible. It is a vocational try-out, to ascertain and develop interest and talent. The theory asserts that more can be accomplished by intensive work recurring daily than by infrequent efforts spread over a long period. In Gary, Indiana, the period of rotation is thirteen weeks. In that town the schools have three promotions a year. The period of rotation in special activities, therefore, coincides with the school term. In New York we have but two promotions, hence the most convenient period for rotation would be twenty weeks, but this would give the pupil more time in certain subjects than the course of study allows.

In view of this difficulty, various periods have been experimentally employed by the several principals. For example, one says:

“Children in grades 4B-8B change from one activity to another activity every 20 days. I insist, as far as possible, that every child shall have every activity mentioned in the course of study and the full allotment of time. In lower grades children change every 6 weeks (32 days.) Special teachers of science, shop, and cooking are reasonably sure this consecutive work is to the advantage of their classes. Teachers of drawing like this scheme reasonably well. Teachers of music find it successful during the time children are coming to them, but there is a loss in waiting four months for further classroom music.”

Another principal writes:

"We change about once a month. I do not intend to support this plan by any educational argument beyond the fact that I want to keep all pupils in the same class at the same stage of progress at the beginning of each term. To do this I felt it necessary to provide that all pupils receive instruction in all activities during the present term.

"I made five changes during the past term, but among these changes were assignments to library and gymnasium. I hope to make a more satisfactory programme next term, by having fewer changes for continuous periods and alternating with the others throughout the entire term."

A number of teachers in this school have complained of too frequent changes.

A third principal submits this statement:

"A re-arrangement is made in the special activities at the end of each four weeks. This does not necessarily mean that a subject is dropped and another substituted, as many classes continue the same activity for two full periods of 4 weeks each (8 weeks). But some changes are necessary in order to fit in all classes for the required times.

"The general idea is to carry on any given activity continuously until the time assigned to it for a term has been used up. In the case of a subject like shop-work, two full periods a day (100 minutes) are given. This calls for a period of four weeks to fill in the required time.

"In the case of other special activities (e. g., drawing) it would be inadvisable to have daily periods of 100 minutes each. The length of period, therefore, has been changed to 50 minutes. Consequently, the duration of this special activity is 8 weeks to fill out the required time devoted to the subject. In the main the special subjects were continued for 8 weeks before being dropped.

"I do not think the periodic assignment can be justified for all the subjects even in the above list. For the subject of music I considered it wrong, and so excluded music, allowing this subject to extend over the entire term (a correspondingly small amount of time per week).

"In such subjects as library, drawing, science, I question whether there is necessity or justification for the intensive method. I can see no reason why pupils should need the library for a certain number of weeks and then find no further use for it.

"It seems to me that the intensive method of handling a subject is applicable only where manual dexterity is being developed. In the above list it would include (1) typewriting in the commercial room (not the other part of commercial subjects), (2) shop work, (3) and possibly cooking."

In still another school the thirteen-week period of Gary is in use.

METHOD OF ASSIGNMENT TO SPECIAL ACTIVITIES

The method of assigning children to the various activities, the order of rotation, and the amount of choice allowed, was also investigated. Here are typical forms of procedure:

Principal A:

"All children must take all the activities required by the course of study. Children with the permission of parents are allowed to choose printing or typewriting and drop other special activities. The order in which children take up special activities is controlled under my scheme of rotation by the program.

"Records are kept in class ledger of special subjects taken by children. Each child has five lines from right to left across the page allotted to him for his record. At the top of the page are the subjects taken each month and from month to month the points obtained in each subject. The record book is the ordinary leather covered class record."

Principal B:

"In assigning children to special activities, I have not been able to follow any uniform method, as there are

double and single periods in certain subjects. I gave the preference of double periods to the higher grades. As long as there must be double periods for cooking and shop-work, there will always be two single periods per day left in these subjects, and if the higher grades are to be given preference, the scheme providing for the assignment of special subjects in the same order for all classes will always be impossible.

"Records of changes in assignment are kept by classes, and since all pupils in a class follow the same programme, the record of any individual pupil corresponds with the record of his class. There have been very few exceptions to this rule and in these cases individual records have been kept."

Principal C:

"During the course of one term, the pupils have devoted some part of their time to each of the several activities.

"Pupils are not at liberty to elect except the commercial course, the special subjects in my school being all included in the prescribed course of study.

"No general principle governs the sequence of these subjects during the course of the term. If, for example, shop should properly come first during the term, then only one class can be correct in this respect. Another class must have the last part of the term and be assigned contrary to the assumed principle. The other classes between the extremes will be correspondingly right or wrong in assignment."



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