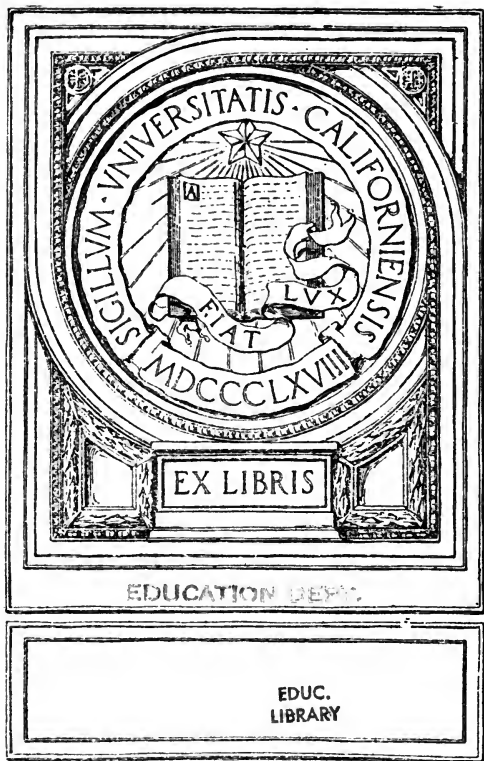


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## IVB. INDUSTRIAL TRAINING IN THE COSMOPOLITAN HIGH SCHOOL

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A cosmopolitan high school may be defined, from the vocational standpoint, as a high school which provides various kinds of vocational education. In such a school are combined the advantages which some communities seek to provide by establishing special types of high schools. Such a school offers many courses and trains for many vocations in one plant and under one management. Ideally, such a school will provide equal or proportional representation of all types of vocations which the children of a given community may wish to pursue.

By direction of the Secretary of this society, the writer characterizes briefly the cosmopolitan high school under his own supervision. With the opening of school in 1911, the high school at Decatur, Ill., moved into a new plant which had been under erection during the preceding years. The building was conceived and built for the purpose of accommodating a cosmopolitan high school enrolling about 1,000 students.

By the time the building was completed the faculty had developed a tentative organization of the lines of work and opportunities to be opened to students. The course provides ten groups of study; each group possesses a core or backbone of required work extending over four years. Certain elective privileges are extended in the elective and optional studies provided in each study group. The course of study which this organization displaced provided strong liberal-arts advantages and in addition a little bookkeeping, cooking, sewing, and manual training. In the present organization, the former work in the liberal arts is broadened and extended and organized into six groups of study—foreign language, English, mathematics, science, history and civics, art—each group taking its label from the lines of work constituting its core or backbone. Vocationally these groups of study are intended to equip students for further study in normal schools, colleges, universities, art schools, and schools of technology. The bookkeeping



has been displaced by lines of work affording extensive business and commercial advantages and fitting for business pursuits, office and clerical work, and for higher study in related lines. Likewise, extensive courses have been provided in the household arts in place of the limited work in cooking and sewing and in the mechanic arts in place of the work previously provided in manual training. The household-arts courses are primarily intended to fit girls for home management. At the same time they will afford large returns to those who wish to go into such trades as millinery or dressmaking, or into teaching, or to pursue advanced study in this field. The mechanic-arts course should render valuable service to those fitting for the trades and industrial work and for advanced study in schools of engineering and technology. The tenth group of study is the normal preparatory group, designed to promote the training, development, and guidance of those students who wish to teach in the public schools.

The foregoing discussion of the organization of the high-school course of study is purposely stated from the vocational standpoint, both because this is the key to its adequate interpretation and because of the standpoint assumed above in defining the cosmopolitan high school. While the preceding discussion analyzes this course of study from the point of view of vocational attainment, the other values it provides, such as discipline, culture, appreciation, and vocational discovery, are definitely sought in its administration.

The term industrial training, or education, has been and is used with various significations and contents. In his *Education for Efficiency* (p. 38), Dean Davenport employs it to include training for agriculture, the mechanic arts, household affairs, and the industries connected with manufacturing. The Committee of Ten of the National Society for the Promotion of Industrial Education (*Report*, p. 71) included in industrial education the trades and agriculture. *Bulletin No. 12* of the National Society defines (p. 19) industrial education in such a way as to distinguish it from other forms of vocational education by saying its "purpose is to fit for a trade, craft, or special division of manufacturing work." Thoughtful speakers and writers have generally accepted the content ascribed to this term in *Bulletin No. 12*, and it was evidently the intention of those who organized this *Yearbook* that it should be so defined. The term is so used in the following discussion.

The problem of the public schools in providing industrial training

is essentially one of producing skilled labor. The school must seek to render efficient and intelligent all those who are to serve society through participation in the industries. It should proceed in the solution of this problem, however, consciously guided by the fact that skilled labor is of two widely different kinds—that which depends mainly on *habit* and that which depends mainly upon *initiative*. Between the extremes of these types of labor we find a large variety of ability with various combinations of habitual action and initiative, of course.

The equipment of these two types of skilled labor is very different. The first type requires that a man shall be so drilled in the handling of particular materials in a particular way that his procedure is always the same. All of his actions are automatic responses emanating from definite, well-established habits. The second type of laborer, on the other hand, will find, as Superintendent Brooks, of Boston, shows (*Report for 1909*, p. 35), that “the overemphasizing of habit will prove a hindrance to mobility of thought and readiness in action when confronted with conditions demanding the use of judgment.” His need is not so much the ability to perform a given set of operations upon particular materials with great speed and a high degree of accuracy. Rather, his equipment consists in a knowledge of machinery, materials, and processes, and of ways and means of employing the same, with the labor available, to secure different and improved products. He must be strong in his mastery of facts and principles, in his ability to concentrate as he reasons on the plans his creative imagination evolves, in his power to draw safe, practical conclusions from the data under consideration in an actual industrial situation, and in the successful execution of plans and policies determined upon. Habit formation enters largely into the development of the laborer who is to exercise initiative mainly, but the habits formed are those which have a wide, general use. It is evident also that the ideals and tastes of the second type of laborer are quite as important as his habits.

No public high school which I have been able to study attempts to provide industrial training for the first type of laborer. The tasks he will be called upon to perform are so subdivided under modern industrial conditions that the school does not need to attempt the development of the particular skill required in such laborers. A very few days' experience in any factory will do for these laborers all that education could ever do in the development of mere skill. The school

City and School	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
1. Chicago: all high schools offer two years of work, advanced and intensive work in Lane Technical, Crane Technical, and Lake high schools.	<p>Of the 11 courses announced, three definitely seek to provide industrial training:</p> <p>a) The manual-training course "is to prepare students for the technical industries."</p> <p>b) The builders' course "is to prepare students for the building industries."</p> <p>c) The household-arts course is "to prepare for . . . the textile trades."</p>	<p>Courses in printing, proof-reading, woodworking, mechanical drawing, foundry, forge, pattern-making, machine-shop practice, machine and architectural drawing, electrical or gas engine construction, brick-laying, masonry, metal-work, electrical wiring, making estimates.</p> <p>Work in mathematics, physiography, history, sanitation, physics, chemistry, biology taught from industrial standpoint, also attention to contracts, specifications, ordinances.</p>
2. Cincinnati: all high schools.	<p>Of the 9 courses announced, the technical co-operative courses for both boys and girls are definitely planned to provide industrial training. During the first two years, boys take technical laboratory work and drawing given in the manual-training course. By close of second year boys "decide what shops or trades they desire to enter." "No trade is taught in school." Co-operation in millinery and dressmaking trades only have been arranged for girls.</p>	<p>Courses announced are manual training, turning, cabinet and pattern making, foundry, forge, machine-shop science and practice, sewing, millinery, dress-making, tailoring, art needlework.</p> <p>"Mechanical drawing . . . and the work in mathematics, English, and physics is so chosen that the relation between the different subjects and the shopwork is emphasized."</p>
3. Cleveland: the technical high school.	<p>The two ends in view are: (1) "to prepare youths of both sexes for a definite vocation and for efficient industrial citizenship; (2) to help men and women already employed to better their vocation by increasing their technical knowledge and skill." Opportunity is afforded also to prepare for entrance to technical schools. Two years of general work are required of all; in the</p>	<p>The courses include printing, mechanical drawing, turning and cabinet making, foundry practice, forging, machine shop, machine sewing, dressmaking, millinery.</p> <p>The content of the other studies is determined by the aim of the school; e.g., the outside reading in English includes the "best in invention and discovery, manufacture and distribution, and the attendant</p>

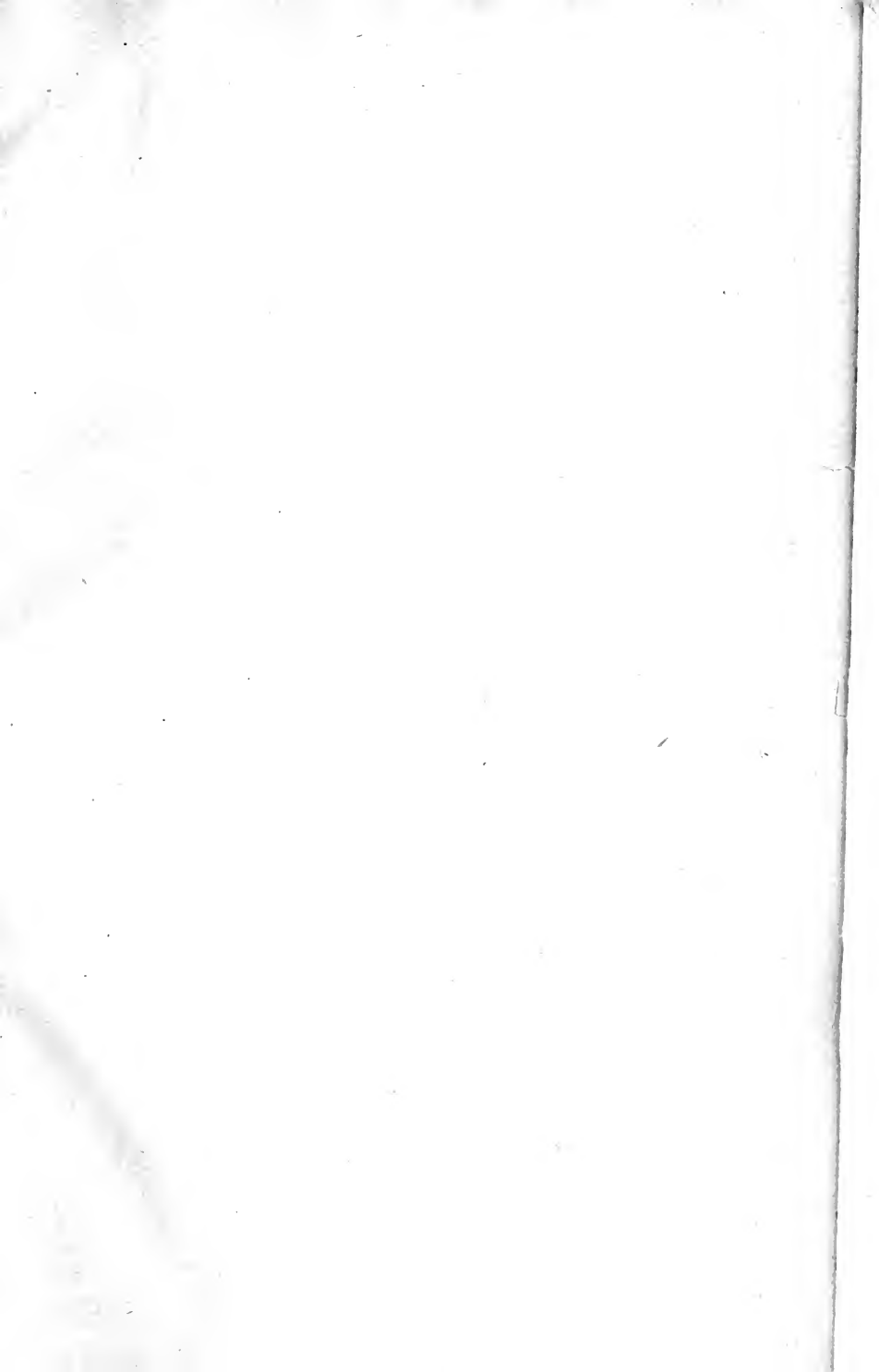
City and School	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
	last two years specialization in the direction of a vocation is expected.	industrial and labor problems; the mathematics work articulates with the work of the drafting-room, shop, domestic science, domestic art; geography emphasizes industries of various regions; chemistry is related to cooking for girls, and to nature, uses, and methods of manufacturing charcoal, coke, iron, steel."
4. Indianapolis: the manual-training high school.	Specific data were not received, but the principal of the school told me in a conference that their work so far as industrial courses are concerned is exactly like that provided in the Cleveland Technical High School.	d, but the principal of the ce that their work so far as in- ed is exactly like that provided High School.
5. Kansas City: the manual-training high school	It is not the aim to produce mechanics any more than any other class of specialists. No special trade is taught, but the aim is to give the pupil that kind of skill and constructive ability which will enable him to take up any trade.	Courses providing work resulting in industrial training are sewing, dress-making, millinery, joinery, turning, molding, pattern-making, forging, machine toolwork. The data supplied do not indicate that work in other subjects is given an industrial bias.
6. Los Angeles: the polytechnic, mechanic-arts and manual-arts high school.	The polytechnic is the technical high school of the city. Its courses are highly specialized. The mechanic-arts high school provides advantages falling between those in the classical and technical high schools. The industrial work is presented from the educational and developmental standpoints. The manual-arts high school provides the work usually offered in a manual-training high school. Its aim in relation to industries is to bring a closer relationship between industrial pursuits and educational advantages. Each of these special high schools is really cosmopolitan in character.	Courses are provided in wood-working, forge, machine shop, machine sketching, mechanical drawing, foundry, pattern making, sewing, dressmaking, millinery, printing. Nine groups of study are provided in the polytechnic high school leading to expert ability in electrical engineering, drafting, pattern-making, forging, cabinet-making, foundry work, machine work, dressmaking, millinery. All other lines of work are presented with special reference to the technical aim of this school. The courses in the other schools are similar but fewer in number and are less highly specialized vocationally.

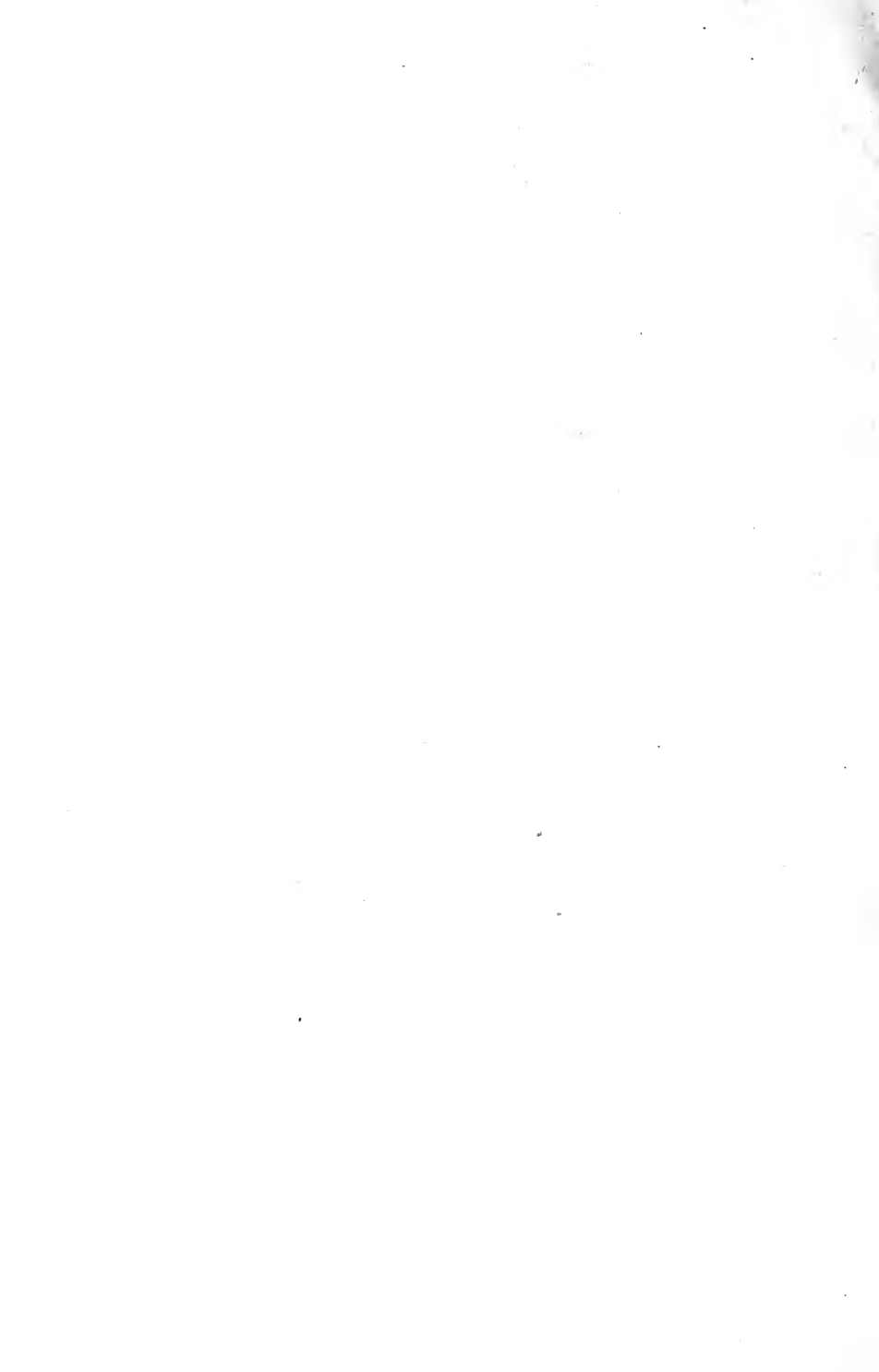
City and Schools	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
7. Louisville: Du Pont manual-training high school.	By terms fixed by donor, "no special trade shall be taught in said school." The work is "not primarily industrial but educational."	Work provided in drawing, wood-turning, joinery, pattern-making, forge, foundry, machine shop.
8. Newton, Mass.: the technical high school.	The aim of the extra technical course is to prepare "for work in the productive industries."	Courses are offered in mechanical drawing, cabinet making, wood-turning, machine and vise work, forging, pattern-making, molding, machine shop, electricity, tool-making, dressmaking, millinery, laundering, catering. All subjects in this course are taught from the industrial standpoint.
9. Springfield, Mass.: the technical high school.	The aim is to "combine and correlate practical training with a full course of academic studies." "No attempt is made to teach either the mechanical or building trades." "Aim in all departments . . . is educational, broad and practical—not narrowly vocational."	Courses are provided in weaving, sewing, pattern drafting, shirt-making, dressmaking, millinery, wood-turning, joinery, metal-work, lathework, pattern-making, forging, machine-shop work, tool- and machine-making. Same plant and equipment is used for evening school of trades.
10. St. Louis: all high schools.	The course in manual training has an industrial bearing, "but it is not the purpose of the course to teach any trade but the work embodies the principles underlying all trades." The aim of the work is educational. "By giving special attention to some one of the occupations taught in the high-schools, workmanlike skill and speed in its practice may be acquired."	Courses provided are such as are common in manual-training schools, joinery, carving, turning, molding, pattern-making, foundry, forging, machine-shop work, sewing, cutting, fitting, garment-making, millinery, laundering.
11. St. Paul: all high schools.	Courses of study are not in pr	int for distribution yet but in politan high schools four years ed, the superintendent writes, turning, joinery, cabinet mak- foundry work.

may do much, to be sure, in rendering these laborers industrially intelligent, but the training essential in securing this end is largely of the type which emphasizes the development of initiative rather than habitual action.

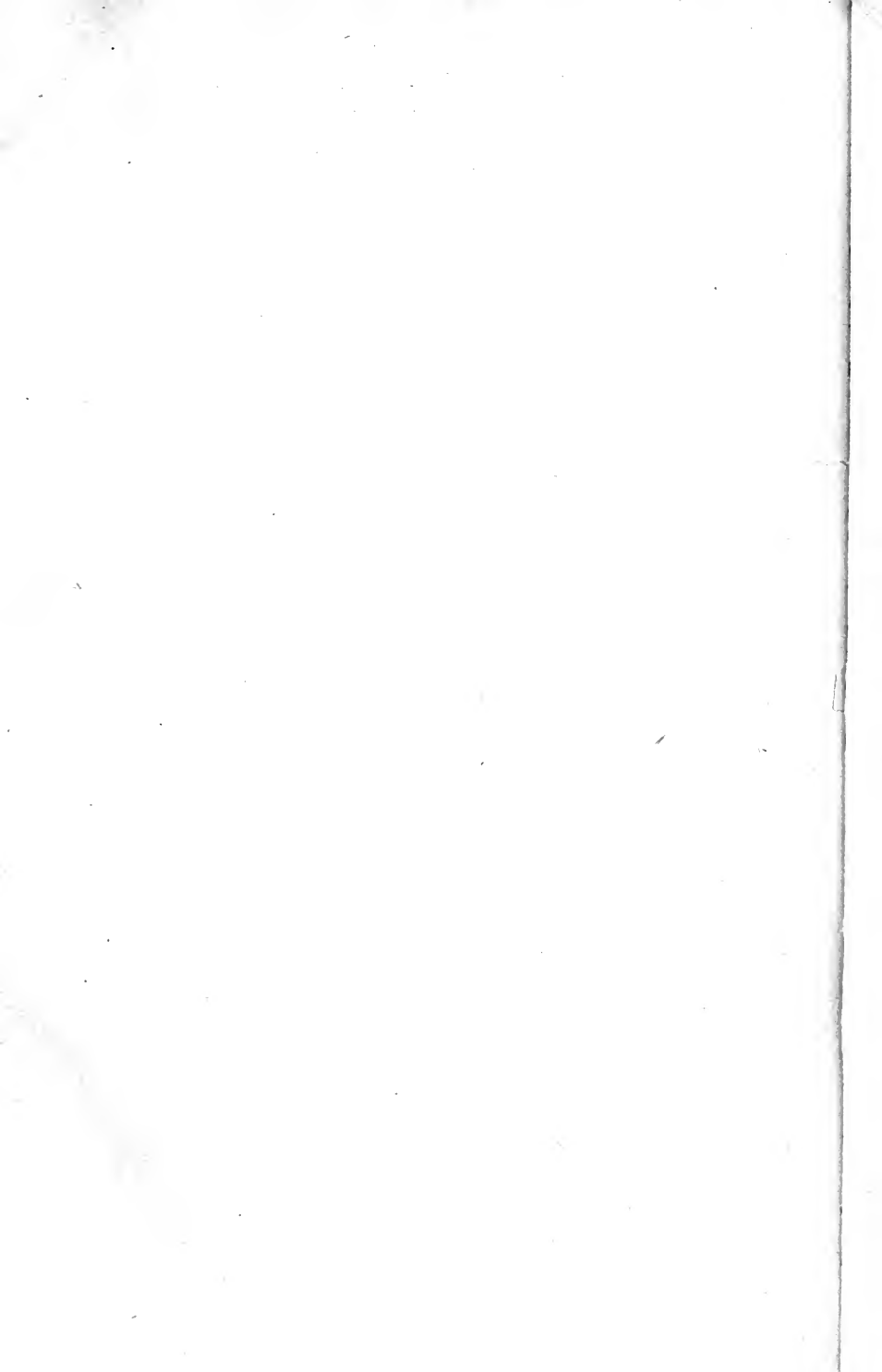
The controlling aims and the lines of work employed in a number of widely separated, representative general or cosmopolitan public high schools, that seek to provide industrial training which should function in the development of industrial workers of the second type and of many of the grades of labor falling between the extreme types, are briefly indicated on pp. 71-73. The data was secured from printed bulletins mainly, although it was necessary to supplement this in some cases by correspondence. It is evident that schools providing strong work in industrial education have been omitted. The list of schools investigated was made up from the writer's personal knowledge and from information received from the Secretary of this society, the Secretary of the National Education Association, the office of the Commissioner of Education for Massachusetts, and the Bureau of Education at Washington.

How wide the gap is between the statement of a school's purpose and the concrete realization of the results it promises, I am unable to determine. The belief seems fairly justified, at least, that a few schools are making a definite beginning through the co-operative plan of work or otherwise, in the provision of training in printing, carpentry, brick-laying, masonry, painting, plumbing, and in the development of the basis for a high type of appreciation and initiative in whatever phase of industrial work the student may go. In view of the results secured in evening classes with a given plant, equipment, and faculty, there seems no insurmountable reason for not securing correspondingly satisfactory results in industrial training with the regular students of the same high school.









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