DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1929, No. 22

SECONDARY EDUCATION

By

CARL A. JESSEN

SPECIALIST IN SECONDARY EDUCATION
BUREAU OF EDUCATION

[Advance sheets from the Biennial Survey of Education in the United States, 1926-1928]

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1929

the Superintendent of Documents, Washington, D. C. - - - - - - - - - - Price 5 cents

SECONDARY EDUCATION

By CARL A. JESSEN

Specialist in Secondary Education, Bureau of Education

CONTENTS.—Growth in public high schools—The reorganization movement—The junior college—The curriculum—Articulation between educational units—Research and secondary education.

GROWTH IN PUBLIC HIGH SCHOOLS

During the period 1918 to 1926 the total population of the United States increased somewhat less than 15,000,000, not quite a 14 per cent growth, according to estimates of the Bureau of the Census. During this same time the number of high schools increased 5,400, a 33 per cent increase. The teaching force in these schools practically doubled. The number of pupils, too, came within a hundred thousand of doubling during the 8-year period. Costs increased more than 300 per cent. These situations are reported in Table 1.

TABLE 1.—*Public high-school increases, 1918–1926*

	1918	1922	1924	1926
Number of schools	16,300	[1] 18,000	19,442	21,700
Number of teachers	84,988	129,537	144,230	169,538
Number of pupils	1,933,821	2,873,009	3,389,878	3,757,466
Cost	$162,875,761	$417,297,222	$589,189,606	$897,911,735

[1] Estimated.

At the present time more than one-half of our population of ages 15–18, inclusive, is actually enrolled in secondary schools. In 1918, the percentage was 28.29; in 1920, 37.80; in 1922, 41.74; in 1924, 48.35; and in 1926, 53.12. The corresponding percentages for enrollments in public high schools range from 25.6 in 1918 to 48.2 in 1926.

THE REORGANIZATION MOVEMENT

Attending the unprecedented expansion in secondary education is the widespread movement for reorganization. Before the war the 4-year high-school course was practically universal; organization on any other basis was relatively rare. Now we have junior high schools, senior high schools, junior-senior high schools, 5 and 6 year

high schools, and junior colleges with many varieties within each of these classes.

In 1924, 2,549 high schools, exclusive of junior colleges, reported that they had deviated from the regular 4-year organization. In 1926, the Bureau of Education had a record of 3,637 reorganized schools, a 42 per cent increase during the two years.[1]

Enrollment is an even more revealing measure of the extent to which the reorganization movement has taken hold of secondary education. The total enrollment in reorganized high schools in 1924 was 885,411; in 1926 it was 1,539,021, a 73 per cent increase.

The fact that the percentage of increase is much larger in enrollment than in the number of schools argues that reorganization is taking place more frequently in large than in small high schools. This fact is emphasized in the following paragraph, quoted from a study completed by a special committee of the National Committee on Research in Secondary Education and published by the Bureau of Education:[2]

> It is seen from the totals for each population group that 10.9 per cent of the schools involved occur in places of 100,000 or more population; 9.6 per cent occur in population centers of 30,000 to 100,000; 29.4 per cent occur in population centers of 2,500 to 30,000; 50.1 per cent occur in all urban centers combined; and 49.9 per cent occur in population centers of less than 2,500, or rural territory. Approximately 80 per cent of all high schools occur in rural territory, compared with 49.9 per cent for schools of the junior-senior type. It is obvious, therefore, that the junior high school occurs in urban territory in a higher comparative frequency than in rural territory.

It should not be concluded that reorganization is confined to or especially prevalent in any special section of the United States. The States in which the largest number of schools have been reorganized are, in order, Ohio, Indiana, Michigan, with Pennsylvania and Massachusetts tied for fourth place. The States in which the ratios of reorganized to total high schools is highest are, in order, Alabama, Massachusetts, Vermont, Utah, New Hampshire, Michigan, Colorado, West Virginia, Arizona, Florida, Wyoming, and California. In all of these States more than one-third of the schools have been reorganized.

Among the different types of reorganized schools the junior-senior organization is of greatest frequency. The number of segregated junior and senior schools and of undivided schools is, however, increasing at a much more rapid rate. The plan of having junior and

---

[1] A slight discrepancy will be noted between these figures and those given in Bulletin of the U. S. Bureau of Education, 1927, No. 33, Statistics of Public High Schools, 1925–26. This variation results from the fact that not all reports had been received at the time the tables of Bulletin No. 33 were compiled.

[2] Bulletin of the U. S. Bureau of Education, 1928, No. 28, The Rural Junior High School. Dr. E. N. Ferriss, of Cornell University, was chairman of the committee making the study.

senior schools together is plainly giving way to segregation of these units or, in the smaller school systems, to consolidation into a single five or six year unit.

The 3-year unit is decidedly in the ascendancy. This is true of the segregated junior high school, the segregated senior high school, and the 3–3 plan of junior-senior high school; in all of these situations the 3-year unit outnumbers the total of all other classes approximately 3 to 1. Three-fourths of the undivided schools are of the 6-year type.

The variety in types of reorganized schools is extraordinary but not surprising when one considers that the movement has been rapid, unorganized, and without attempt at standardization nationally or regionally. In promoting reorganization, it is true, many of the States have announced uniform State plans; these have, however, usually been quite flexible—for guidance rather than for conformity to any one pattern. School systems desiring to organize on some basis other than the 7–4 or 8–4 plan have thus generally been allowed freedom in experimentation. This attitude may serve to explain the situation shown in Table 2, where 28 different types of reorganization are listed, aside from a number of unclassified schools.

The Biennial Survey of Education, 1924–1926, carried a similar table.[3] Comparison of that table with Table 2, which follows, justifies the following generalizations regarding changes during the 2-year interval:

1. In seven States the reorganization movement appears to be practically at a standstill. In some of these States reorganization was well advanced in 1924.

2. Two States, Maine and Oklahoma, show an appreciable decrease in the number of reorganized schools after 1924.

3. Fifteen States show a marked increase in the number of high schools deviating from the regular 4-year type of organization. In eight States, namely, Alabama, Florida, Illinois, Louisiana, Massachusetts, North Carolina, South Carolina, and Texas, the number of reorganized schools has increased from 100 to 800 per cent during the 2-year period.

4. The principal increases have been in the segregated senior, the segregated junior, and the five or six year undivided high schools.

While statistical data for the Nation more recent than 1926 are not available, the following statements, based upon reports submitted by State departments and city school systems, are indicative of trends in the reorganization movement since 1926:

[3] In this publication refer to Table 5 of Ch. V, Trends in the Development of Secondary Education.

TABLE 2.—*Reorganized high schools class*

State	Total	Segregated junior high schools									Segregated senior high schools					
		Total	Grades 6 and 7	Grades 6–8	Grades 6–9	Grades 7 and 8	Grades 7–9	Grades 7–10	Grades 8 and 9	Grades 8–10	Total	Grades 8–11	Grades 9–11	Grades 9–12	Grades 10–12	Grades 10–13
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Continental United States	3,637	1,127	2	28	6	167	629	74	17	5	414	1	19	111	280	3
Alabama	164	21				1	10	9	1		3		1		2	
Arizona	17	6				1	4	1			2			1	1	
Arkansas	52	8				1	3	3		1	2				2	
California	136	77				1	76				23			1	22	
Colorado	83	18				3	15				8			2	6	
Connecticut	29	14				1	13				4			1	3	
Delaware	4															
District of Columbia	8	8					8									
Florida	63	32			1		25	5		1	4				4	
Georgia	33	15		2			11	2			6				6	
Idaho	16	3				1	2				2			1	1	
Illinois	56	26		1		11	11				13			7	6	
Indiana	276	38				18	18	2			16			11	5	
Iowa	175	25		1		3	20	1			12			2	10	
Kansas	152	62		1		23	38				47			22	25	
Kentucky	46	8				3	4	1			5			2	3	
Louisiana	18	6			1	1	1	1	2		9		2	2	4	1
Maine	24	8				3	3		2							
Maryland	21	14				1	12		1		1				1	
Massachusetts	232	109				15	92	1	1		43			13	28	2
Michigan	261	55				8	38	6	1	2	24			7	17	
Minnesota	93	27				1	23	1	2		12			1	11	
Mississippi	52	2				1		1								
Missouri	96	17				2	12	2	1		10			1	9	
Montana	14	6				3	3				1			1		
Nebraska	66	23		1		7	13	2			15			7	8	
Nevada	5	1					1				1				1	
New Hampshire	49	22				12	7	3			11		1	8	2	
New Jersey	53	29				2	27				11			1	10	
New Mexico	12	2					2				1				1	
New York	160	69				2	64		2	1	5			2	3	
North Carolina	24	6					5	1			1				1	
North Dakota	24	3				1	2									
Ohio	207	78				11	66		1		29			5	24	
Oklahoma	115	18				1	17				6				6	
Oregon	25	14			1	3	10				8			3	5	
Pennsylvania	232	89				10	68	11			26			4	22	
Rhode Island	1															
South Carolina	5															
South Dakota	13	3					3				3				3	
Tennessee	28	10				3	4	3			4		1	1	2	
Texas	67	28	2	17	2	6		1			15	1	14			
Utah	37	21					14	6	1		4				4	
Vermont	42	7				2		5			2			2		
Virginia	30	14		4			8	1	1		2				2	
Washington	37	14				2	11		1		5			2	3	
West Virginia	100	39				1	36	2			7			1	6	
Wisconsin	73	28		1	1	1	23	2			10				10	
Wyoming	22	4					3	1			1				1	

fied according to type of organization, 1926

Junior-senior high schools										Undivided high schools							
Total	Grades 6 and 7, 8–11	Grades 6–8, 9–11	Grades 7 and 8, 9–11	Grades 7 and 8, 9–12	Grades 7–9, 10 and 11	Grades 7–9, 10–12	Grades 8 and 9, 10–12	Grades 8 and 9, 10–13	Grades 8–10, 11 and 12	Total	Grades 6–11	Grades 7–11	Grades 7–12	Grades 8–12	Grades 8–13	Grades 9–13	Unclassified
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1,407	9	10	16	610	14	735	16	2	1	596	4	27	471	86	2	6	93
124				6	4	111	3			15			14	1			1
4				4						4			3	1			1
32				9	1	22				10		1	7	2			
29				2		27				7			5	2			
44				20		24				11			9	2			2
10				2		8											1
4						4											
21				6	1	17				2			2				1
10	4	1	2		2	1				2				2			
8				6		2				2			1	1			1
15				11		4				2			2				
70			1	39		30				152		1	148	3			
121				84		32	5			13			4	9			4
39				15		23	1			3			2	1			1
20				13		7				11			7	4			2
1	1																2
10				2		8				5			1	1		3	1
5				2		3				1			1				
31			1	24		4		2		11			4	2	2	3	38
108				51		57				68			58	10			6
45				37		38				8			7	1			1
38			1	24		13				12		4	2	6			
60				28		32				7			3	4			2
7				5		2											
21				9		11	1			5			2	3			1
3						3											
16				16													
4				4						6				6			3
8				6		2											1
73				39		33	1			11			10	1			2
7	1	1	2		2	1				10	1	5		4			
15				13		2				6			1	5			
96			1	32	2	61				91		3	87	1			3
71			1	34		33	2		1	18			16	2			2
2						1	1										1
68			1	21		46				45		3	40	2			4
1				1													
4	2	1	1							1				1			
7				3		4											
12				8		4				1			1				1
12	1	6	5							10	3	7					2
11				7		3	1			1				1			
21				16		5				11			10	1			1
6		1				5				2		1		1			6
16				7		8	1			1				1			1
36				7	2	27				18		1	17				
23				6		17				12			7	5			
15				15						1		1					1

Nearly 15 per cent of the school systems located in cities of 2,500 population or more introduced junior high schools for the first time during the past two years; slightly more than 20 per cent of the cities had introduced junior high school organization previous to 1926. Alabama is looking forward to issuing a list of approved junior high schools. Connecticut reports 6 reorganizations during the biennium. Rhode Island reports 10 new junior high schools; Providence plans to open 1 new additional junior high school annually for several years to come. Kansas added 15 new junior high schools to the State approved list in 1928. Kentucky and Ohio report the establishment of many new junior high schools in cities and of 6-year high schools in villages. Louisville is establishing its school system on the 6–3–3 basis. More than one-half of the high-school pupils in Pennsylvania are enrolled in reorganized schools; the city of Philadelphia passed the half way mark in February, 1928. Practically all pupils of grades 7, 8, and 9 in Denver are now in junior high schools. Wyoming offers special State aid to those reorganized schools in which junior high school teachers hold educational qualifications equivalent to those of teachers in the senior high school. In New York State the rapidly increasing interest in junior high school organization has been one of the outstanding developments during the past two years.

THE JUNIOR COLLEGE

The public junior college is a unit of secondary education which is receiving increased attention. L. V. Koos reported in 1922 the existence of 207 junior colleges in the United States; 46 of these were parts of local public-school systems.[4] In 1927 these figures were brought down to date showing operation at that time of 325 junior colleges, 105 of which were classified as public.[5] Enrollments showed an even more convincing increase of 121 per cent during the 5-year period, with the increase reaching 217 per cent in the public junior colleges. F. L. Whitney[6] in 1928 found 382 junior colleges operating with an enrollment of 44,372 students. Directory material tentatively prepared in the fall of 1928 by the American Association of Junior Colleges listed 408 junior colleges, with an enrollment of 50,529 students.

In addition to marked development in California the public junior college has been developed especially in the Mississippi Valley from Canada to the Gulf of Mexico. California leads with 30 public

[4] Koos, L. V. The Junior College. Education Series, No. 5, 1924. University of Minnesota, Minneapolis.

[5] Koos, L. V. Recent Growth of the Junior College. School Review, April, 1928.

[6] Whitney, F. L. The Junior College in America. Colorado State Teachers College, 1928.

junior colleges and Iowa is second with 20. According to the latest lists there were 38 junior colleges accredited by the North Central Association and 13 by the Southern Association. Both of these associations maintain special committees for the study of junior college development. Iowa, Kansas, New Hampshire, Oklahoma, and Wyoming have within the past two years, established standards for accrediting junior colleges. Foster [1] secured data in 1927 indicating that official recognition was given to junior colleges in 20 States; Whitney [2] lists 24 States in 1928. In some cases, such recognition was given by the State university; in others by the State board or the State department of education; in still others by the State college association. Standards had been prepared in some States; in others, the standards of regional and other accrediting agencies had been accepted.

The junior college as ordinarily organized is an independent 2-year unit to which pupils are admitted upon graduation from high school. A plan by which the two years of junior college would be combined with the last two years of high school has been advocated by authorities such as Koos, Proctor, and Eby In April, 1928, the school board of Pasadena, Calif., definitely adopted the 6–4–4 plan. Johnstown, Pa., and Hillsboro, Tex., are other school systems in which the junior high school is a 4-year unit with another 4-year unit of senior-high-school-junior-college grade more or less clearly defined. Principals Ewing and Harbeson and Superintendent Sexson of Pasadena have discussed the advantages of the 6–4–4 plan in recent articles.[3]

Opinion appears to be crystallizing in favor of two general types of curriculums, one preparatory to further college work, the other terminal with the end of the junior college. The terminal courses, too, are frequently of two kinds, those designed for students who desire some specific type of vocational training, and those intended for students whose plans for entrance upon a vocation are not so definitely matured.

Recent outstanding additions to the educational literature on the junior college are: An incisive study by Eells, indicating that junior-college graduates did better work in the last two years at Stanford

[1] Foster, J. Owen, and others. Some Phases of the Junior College Movement. Indiana University, Bureau of Cooperative Research, 1927.

[2] The Junior College in America, by F. L. Whitney. Colorado State Teachers College, 1928.

[3] Ewing, William F. The 6–4–4 Plan of Educational Reorganization. *In* Proctor's The Junior College, 1927.

Harbeson, John W. The 6–4–4 Plan of Schools Organization, with Special Reference to Its Application in the City of Pasadena. California Quarterly of Secondary Education, October, 1928.

Sexson, John A. Six-Four-Four Plan of School Organization. American Educational Digest, October, 1928.

University than did students who attended the university four years;[10] a group of papers given before a conference on the junior college in California;[11] bulletins on the junior-college movements in Louisiana,[12] in Iowa,[13], and in California;[14] reports by Whitney on changes in junior-college purposes and curriculums;[15] and books by Bennett,[16] Proctor,[17] and Whitney.[18]

THE CURRICULUM

The interest displayed in the curriculum during the past 35 years, and especially during the past decade, is resulting in significant changes in public schools. Monroe and Herriott[19] indicate that the principal developments in curriculum making since issuance of the Report of the Committee of Ten have been the following: Emphasis upon objectives with attendant clarification and extension of the purposes which are aimed at in our secondary schools; some elimination and a great deal of addition to subject offerings, together with grouping of subjects into curriculums; marked changes in content of subjects, especially on the junior high school level; adaptations to meet individual differences in interests, tastes, capacities, and probable futures of pupils.

Criticism of the curriculum from both within and without the school is frequent.[20] Much of this criticism must, however, be interpreted rather as lack of satisfaction with present status than as disappointment over the progress which has been made. In "the old red schoolhouse" much of the English training consisted in learning to spell unusual and unused words, reading a few classics, studying formal grammar, and memorizing rules of rhetoric; civics courses were brief and placed almost exclusive emphasis upon organization of government; physiology concerned itself with structure, botany with classification, and zoology with pickled specimens. These ghosts

[10] Eells, W. C. University Records of Students from Junior Colleges. California Quarterly of Secondary Education, June, 1928.

[11] California Quarterly of Secondary Education, October, 1928.

[12] Foote, John M. The Junior College Movement in Louisiana. State Department of Education, Baton Rouge, 1928.

[13] Samuelson, Agnes. Public Junior Colleges. State of Iowa, Des Moines, 1928.

[14] Cooper, William, John, and others. The Junior College in California. California State Department of Education, Sacramento, 1928.

[15] North Central Association Quarterly. Issues for September and December, 1928.

[16] Bennett, G. V. Vocational Education of Junior College Grade. Warwick & York, 1928.

[17] Proctor, William M. The Junior College, Its Organization and Administration. Stanford University Press, 1927.

[18] Whitney, F. L. The Junior College in America. Colorado State Teachers College, 1928.

[19] Monroe, Walter S., and Herriott, M. E. Reconstruction of the Secondary School Curriculum: Its Meaning and Trends. University of Illinois Bulletin, Urbana, June 10, 1928.

[20] See, for instance, William S. Learned's The Quality of the Educational Process in the United States and in Europe. The Carnegie Foundation for the Advancement of Teaching, 1927.

of a bygone day appear paler than ever before, if one places them in juxtaposition with modern English courses stressing oral and written composition, extensive reading, and scientifically selected spelling words; or with present-day civics courses emphasizing functional treatment of problems; or with up-to-date programs of health education. The curriculum was theoretical and is now practical, was formal and is now functional, was rigid and is now flexible, was narrow and is now broad. No one will contend that all curriculum ideals have been achieved. But we have come a long way; and the trail still leads upward.

During the period under consideration a total of 64 revised or newly developed State courses of study in one or more high-school subjects reached the Bureau of Education from 29 States. Four States published general revisions of all high-school courses and four others were engaged in such revision on July 1, 1928.

A sampling of school systems reporting to the bureau for 1926-1928 showed that 63 per cent had programs for revision of the high-school curriculum completed or in progress. In cities of more than 100,000 population the percentage reached 86, and in cities below 10,000 it dropped to 54; one explanation for the lower percentage in smaller cities may be that these school systems relied more generally upon State courses of study than did those in larger centers. One-third of the cities had programs of revision in progress at the close of the biennium; one-fifth reported completion of revision of courses of study for junior high school or senior high school or both; one-twelfth were committed to the policy of constant revision.

Consideration of the secondary-school curriculum by national and regional associations has been especially pronounced. The commission on the curriculum of the Department of Superintendence brought to a close its five years of work with two yearbooks dealing with the curriculum in secondary education. The National Society for the Study of Education issued its twenty-sixth yearbook on foundations and technique of curriculum building. The Virginia Committee for Research in Secondary Education gave its 1928 meeting to consideration of curriculum construction. The commission on unit courses and curricula of the North Central Association of Colleges and Secondary Schools presented elaborate reports to that association at the annual meetings of 1927 and 1928.

No one of these organizations attempts to set up a national curriculum or to develop courses of study which can be transferred bodily into the schools. The Department of Superintendence, in its fifth (1927) yearbook,[21] gives one part of the report to discussions of the

[21] Department of Superintendence, Fifth Yearbook. The Junior High School Curriculum. National Education Association, 1927.

place of the junior high school in the American program of education; by far the larger portion of the yearbook deals with research studies conducted in the various subjects of the junior high school curriculum. In the sixth (1928) yearbook of the Department of Superintendence[22] discussion and data are presented on problems, principles, and practices relating to the high school; as with the fifth yearbook, a considerable section is devoted to abstracts of research studies in the several subjects. The twenty-sixth (1927) yearbook of the National Society for the Study of Education[23] deals with the curriculum in a fundamental way; there is thus included much material equally significant for all levels of educational work. One chapter of the foregoing is assigned to current practices in curriculum making in public high schools, and in other chapters description is offered of curriculum construction in a number of particular cities and schools. The Virginia Committee for Research in Secondary Education[24] studied principles, trends, and techniques with special emphasis upon mathematics and social studies. The commission on unit courses and curricula of the North Central Association presented reports[25] of 16 subject committees during the past two years. The reports set up qualitative standards in the various subjects. The problem of *how much*, i. e., quantitative standards, is not considered unimportant but must, in the opinion of the commission, for its solution await answer to the question of *what kind*, i. e., qualitative standards.

Most of the curriculum studies of the biennium are classifiable as belonging to one or more of the following types: (1) Discussions of fundamental principles underlying the curriculum; (2) investigations on subject content and methods of teaching; and (3) studies in the administration and organization of the curriculum.

Ample illustration of the first type of study is offered in the committee reports referred to in earlier paragraphs. The second type of study is usually initiated by an individual, sometimes by a school system; it is often experimental, frequently statistical without controlled experimentation. Studies in the administration of the curriculum are commonly statistical investigations of practice and are likely to be found as parts of studies of the first two types mentioned.

A significant group of studies in the administration of the curriculum has recently been focused upon subject eliminations and additions viewed from an historical standpoint and upon subject requirements, elections, and enrollments as practiced at the present time.

---

[22] Department of Superintendence, Sixth Yearbook. The Development of the High-School Curriculum. National Education Association, 1928.

[23] The Twenty-Sixth Yearbook of the National Society for the Study of Education. The Foundations and Technique of Curriculum Making. Public-School Publishing Co., 1926.

[24] University of Virginia Record Extension Series, Vol. XIII, No. 8, 1928.

[25] North Central Association Quarterly, March, 1927, and March, 1928.

Joseph Roemer [26] found for 844 secondary schools of the Southern Association that in five years subjects had been added 1,612 times and dropped 606 times, a ratio of 2.7 to 1. Eighty-three subjects were involved in these changes.

George S. Counts [27] found a total of 471 subject changes introduced into senior high schools of 90 cities over a period of five years. Of these changes 341 were in the nature of additions while only 130 were eliminations, a ratio of 2.6 to 1. Ninety-two subjects were involved in these changes. In the junior high school the changes were not so numerous, but the ratio of subjects added to those abandoned was 4.6 to 1. Doctor Counts comments as follows on the tendency to make additions to the curriculum:

> While this practice has resulted in a much-needed enrichment of the narrow program of language and mathematics, it can not be pursued indefinitely. Already the secondary-school curriculum exhibits weaknesses which may be traced to this constant addition of new materials of instruction. It is too often a mere aggregation of subjects, an unintegrated program of unrelated activities.

The two years under consideration have witnessed a definite trend toward inquiry into subject requirements, subject elections, and subject enrollments. It is apparent that data of this type indicate, more definitely than eliminations and additions of the past or offerings of the present, the emphasis and effort given to the various subjects in secondary schools.

Subject requirements for high-school graduation as placed by States are reported for the year 1925 in Table 15 of the sixth yearbook of the department of superintendence. Similar data for 154 cities are included in Table 9. In Table 25 are given the facts on required and elective subjects in community high schools of Illinois. An investigation conducted by the Bureau of Education [28] inquired into the requirements for graduation placed by State authorities, by city school systems, and by individual schools during the school year 1927–28.

These studies of graduation requirements agree in showing English as the subject leading both in frequency of requirement and in amount required of the subject. Social studies follow English closely. Laboratory science and mathematics run a close race, mathematics being probably slightly in the lead. Physical education takes fifth place. Few pupils are required to take foreign language or any specified group of vocational subjects. The investigation by the Bureau of Education discloses:

---

[26] Bulletin of the Bureau of Education, 1928, No. 16, Secondary Schools of the Southern Association.

[27] See Chapter VII of the Twenty-Sixth Yearbook of the National Society for the Study of Education.

[28] Bulletin of the Bureau of Education, 1928, No. 21, Requirements for High-School Graduation.

If the central tendencies are accepted as typical, the high-school pupil presents for graduation 16 semester credits of constants and in addition completion of a definite curriculum, or one major and two minors aside from English, or both. Free election is thus limited to one-fourth or less of the pupil's work.

The studies dealing with subject elections of individual students are frequently limited to the graduates of one high school or to the entrance credits presented to one college or university. Illustrations of such studies are to be found in Chapter III of the sixth yearbook of the Department of Superintendence. These studies offer a good indication of the relative importance of the various subjects in any particular school for which data are gathered. If a considerable number of schools were to conduct such surveys on cooperative and comparable bases, the findings would carry greater value since the requirements of one local situation would not then so definitely govern election by pupils.

Probably the most accurate single measure of relative emphasis placed upon the various curriculum subjects is found in data regarding the number of pupils taking the several subjects. Investigations of this type were conducted by the Southern Association, the Modern Foreign Language Study, and the Bureau of Education.

The Southern Association study [29] reveals that enrollments for 1927 range from 83.9 per cent of all pupils registered in English to 0.09 per cent taking Greek. The departments of instruction named in descending order according to number of registrants are: English, mathematics, social studies, natural science, commercial work, Latin, music, Spanish, home economics, French, manual training, art, agriculture, German, and Greek. The original tables report pupil enrollments in the various subjects, (or years of work), within each of the departments named.

The Modern Foreign Language Study released in 1928 a very complete report on enrollments in foreign languages.[30] The committee conducting the inquiry secured positive information regarding foreign-language enrollments in 83 per cent of the public secondary schools in 1925. Their findings were that slightly under 24 per cent of the pupils were registered in Latin and slightly more than 24 per cent in modern languages. The modern-language enrollments, stated in terms of percentages of total enrollment, were: French, 13; Spanish, 10; German, 1; Italian and other foreign languages, negligible.

During the school year 1927–28 the Bureau of Education asked public secondary schools of the nation to report enrollments by sub-

[29] Bulletin of the Bureau of Education, 1928, No. 16, Secondary Schools of the Southern Association.

[30] Wheeler, Carleton A., and others. Enrollment in the Foreign Languages in Secondary Schools and Colleges of the United States. New York, The Macmillan Co., 1928.

jects. Returns from these reports are being tabulated and will appear in another section of the Biennial Survey of Education for 1926–1928. At the time of writing incomplete tabulations have been made for nine States—namely, California, Iowa, Louisiana, Massachusetts, Minnesota, New Jersey, Ohio, Texas, and Washington.

In these States 609,893 pupils were enrolled in the schools which have reported. The percentages which the enrollments in various subjects were of this total enrollment are indicated in Table 3. To show trends parallel percentages are given for subject enrollments in the same nine States in 1922, when the last previous tabulation of this kind was made by the Bureau of Education. The number of high-school subjects reported by these States in 1928 was 243. In order to make the items for 1928 and 1922 comparable in Table 3 it was necessary greatly to reduce this number by grouping subjects.

TABLE 3.—*Percentages of pupils in nine States enrolled in various high-school subjects, 1922 and 1928*

Subject	Percentage of total enrollment, 1928	Percentage of total enrollment, 1922	Subject	Percentage of total enrollment, 1928	Percentage of total enrollment, 1922
English	95.01	80.40	Spanish	13.16	15.16
American history	18.26	15.57	German	1.67	.66
Foreign history	28.97	32.93	Other foreign languages (Greek, Italian, Norse, Swedish, Hebrew)	.29	.24
Other history	.33	.57	Bookkeeping	10.61	14.27
Civics (community civics included)	16.52	18.44	Shorthand	8.69	9.18
Sociology	3.25	2.71	Typewriting	16.19	13.86
Economics	5.31	5.48	Commercial law	3.36	1.25
Other social studies	3.60	(1)	Commercial geography	5.14	1.92
Physics	6.83	9.13	Penmanship	1.28	2.02
Chemistry	7.84	7.99	Spelling	.30	.72
General science	18.12	17.83	Office practice	1.66	.28
Physical geography	2.36	3.89	Business organization	3.26	.03
Botany	1.19	2.86	Other commercial subjects	1.59	.32
Zoology	.32	1.04	Physical training	17.11	6.39
Biology	11.41	7.12	Agriculture	3.17	4.56
Physiology	2.26	5.20	Home economics	20.32	14.99
Hygiene and sanitation	6.60	4.54	Manual training	12.68	12.67
Other science	.96	.24	Mechanical drawing	8.39	3.12
Algebra (beginning and advanced)	31.24	36.99	Music	26.53	25.40
Geometry (plane and solid)	18.82	21.95	Art and drawing	10.11	12.66
General mathematics	6.21	(1)	Normal training	.94	1.04
Arithmetic (advanced and commercial)	9.09	11.97	Public speaking	2.32	1.32
Other mathematics	1.63	1.93	Printing	1.14	.22
Latin	18.67	22.44	Subjects not listed above	.23	.01
French	11.87	15.79			

[1] Not reported.

Emphasis, as measured by pupil enrollment in the various major departments, is in the following order: English, social studies, mathematics, science, commercial subjects, and foreign languages. In 1922 the order was: English, social studies, mathematics, science, foreign languages, and commercial subjects. The most pronounced increase in enrollment has taken place in English and in commercial

work; social studies and science enrollments have remained relatively stationary; mathematics and foreign languages have lost.

Among individual subjects it is apparent that American history is gaining at the expense of foreign history; general mathematics is making inroads into enrollments in algebra and geometry; biology, sanitation, and hygiene show material increases; physics is losing; physiography and physiology are receding in importance; botany and zoology have almost disappeared as separate subjects; all the foreign languages most frequently taught have dropped in number of pupils registered; in commercial work bookkeeping has lost while typewriting, commercial law, commercial geography, office practice, and business organization register increasing numbers of pupils; home-economics enrollments show a substantial increase; mechanical drawing is becoming important in the number of pupils enrolled; physical education has had more convincing growth in enrollment than any other major individual subject.

There has been displayed during the two years covered by this report unprecedented activity in study, construction, and revision of the secondary-school curriculum. Much remains to be done. In fact, one of the important principles which has more and more clearly emerged with the unfolding of the movement is that curriculum study is never done. Society demands of the curriculum maker that he be continually on the alert, adapting old courses and developing new ones to meet the needs of changing conditions. In that direction lies progress.

ARTICULATION BETWEEN EDUCATIONAL UNITS

Another subject upon which attention is now focused by the educational world is that of articulation between units in the educational system. Correlation of work is no less important within units than between them. However, since correlation is more easily attained within units and since lack of correlation becomes most obvious when the pupil passes from one unit to the next, the attack has generally been aimed at the places where the traditional 4-year high school joined with the elementary school on the one hand and with the college on the other. With the expansion of secondary education to include in the junior high school some of the grades formerly assigned to the elementary school and in the junior college the early college years, both of these affected areas have been drawn into secondary education, and the problem which formerly was passed from one unit to the other now becomes peculiarly germane to secondary education.

Recent evidences of the interest in articulation are to be found in various quarters. The regional associations, always concerned with

relationships between high schools and colleges, are approaching the subject through investigations of college entrance requirements and of the success of high-school graduates in college. During the biennium both the North Central and Southern Associations heard reports of committees on college entrance requirements. These two associations and the Association of the Middle States and Maryland have elaborate programs for follow-up studies of high-school graduates who enter colleges. The State Board of Education of New Hampshire gathered data for the school year 1927–28 regarding the success of high-school graduates after they entered college. The Association of College Presidents and the State department of public instruction in the State of Pennsylvania, in collaboration with the Carnegie Foundation for the Advancement of Teaching, are conducting a study of the relations of secondary and higher education in that State. Two chapters of the sixth yearbook of the department of superintendence dealt with interrelations of high schools and colleges.[31] A most convincing indication is the action of the department of superintendence in assigning its entire yearbooks of 1929 and of 1931 to the subject of articulation.

The junior high school, if it lives up to its announced ideals, is a partial solution to the problem of articulation. Bridging the gap between the elementary school and high school has been one of its avowed purposes. How well it is achieving this object is one of the questions asked by both its opponents and supporters. A study by Powers [32] indicates that pupils remain in school for a longer time and progress through school more rapidly under junior high school than under the traditional school organization. That this retention and improved promotion rate may not be altogether a gain is suggested by his findings that actual pupil achievement probably is not so great in the junior high school as in the parallel grades under the 8–4 plan; this in turn may be ascribable principally to lower ability of pupils in 6–3–3 than in 8–4 systems in the particular schools that he studied. Fritz [33] uncovered evidence that under the 6–3–3 plan the break had merely been postponed one year, occurring between the ninth and tenth grades instead of, as formerly, between the eighth and ninth grades. It is obvious that the junior high school holds the possibility of making the path of education easier by bridging the gap between units; it holds also the possibility of neutralizing efforts at articulation by merely transferring the location of the gap or of actually impeding

[31] Chs. 6 and 7.

[32] Powers, J. Orin. The Junior High School: A Study of Instructional Results in a Typical City System. Minneapolis, University of Minnesota Press, 1927.

[33] Fritz, Ralph A. An Evaluation of Two Special Purposes of Junior High School: Economy of Time and Bridging the Gap. University of Iowa Studies in Education, Vol. IV, No. 5. Iowa City, November, 1927.

progress by substituting two gaps for the one which previously existed.

At the upper end of the secondary school period the youthful junior college faces a problem of articulation no less serious. In fact, the difficulties are probably more grave; for this new arrival inherits aged animosities and old misunderstandings which have in the past beset the relationships between high schools and colleges. That the junior college has a real articulation problem to wrestle with is indicated in the findings of Koos[84] that during the first two years of a standard college course students repeat approximately four-fifths of a year of work. How much of this duplication is useful and necessary is a matter still to be determined.

One of the outcomes of the recent discussion of articulation has been revived interest in the length of the period of training. The first important call for a shortening of the period of preparation was voiced by the late President Eliot 40 years ago. Baker of Colorado, Harper and Judd of Chicago, Ives of Louisiana, Cammack of Kansas City, and Stewart of Georgia are names associated with the effort to make possible graduation of students from high school at a younger age.

The junior high school has brought enrichment but not shortening of the course; the coming of the junior college has not been accompanied with any reduction in the number of years which pupils are expected to spend in school. It is not astonishing, therefore, that with the subject of articulation holding the stage proponents of a shorter period of schooling should have injected this issue into the discussion.

The 7–4 elementary high-school system obtaining in a number of the Southern States has formed the basis for much of the argument favoring reduction in the number of years of preparation. Existing, as the 7–4 plan does, in juxtaposition with the 8–4 system, comparisons are conveniently made, and students of education, with an eye to economy of time, have naturally asked, Do the results justify the expenditure of money and time involved in retaining pupils more than 11 years in elementary and secondary schools? Three investigations conducted during the past two years are referred to here as reflecting recent approaches to this question.

For the purpose of ascertaining how extensive is the 11-year system, a letter was sent in March, 1928, from the Bureau of Education to the State departments of public instruction in all States where, according to reports on file, schools were operating on the 11-year plan. The States were requested to report the total number of pupils,

[84] Koos, Leonard V. The Junior College. Minneapolis, the University of Minnesota, 1924.

of both elementary and high-school grades, enrolled in public schools organized on the 11-year plan and on the 12-year basis. With two exceptions the data submitted were for the school year 1926–27. The information secured is as follows:

TABLE 4.—*Distribution by States of pupils enrolled in 11-year and 12-year school systems*

State	Pupil enrollment in 11-year systems	Pupil enrollment in 12-year systems	State	Pupil enrollment in 11-year systems	Pupil enrollment in 12-year systems
Georgia	652, 907	40, 000	South Carolina	471, 701	None.
Louisiana	400, 402	None.	Texas	1, 210, 127	7, 945
Maryland	118, 064	141, 541	Utah	32, 143	106, 614
Missouri	13, 367	412, 534	Virginia	512, 520	36, 797
New Hampshire	3, 426	74, 248			
North Carolina	782, 602	41, 549	Total	4, 197, 259	861, 228

The above table indicates that the 11-year system is more widespread than is generally realized. In the 10 States included, almost five times as many pupils are educated in 11-year as in 12-year systems. Two of the States have no schools organized on the 12-year plan; in four others considerably less than 10 per cent of the pupils are registered in 12-year systems. Compared with enrollments for the Nation as a whole, it becomes evident that more than one-sixth of the public-school pupils of the United States are attending schools where only 11 years are required for completion of the elementary-high-school course.

The Southern Association continued, as a part of its study of freshman college grades, a comparison of grades of students coming from 11-year systems with those of students who graduated from 12-year courses. The results showed that over a 6-year period nine-tenths of 1 per cent fewer failures were registered by students coming from 12-year school systems than were charged against graduates of 11-year schools. The report [35] states that "the difference is too small to be of importance."

The commission on length of elementary education, C. H. Judd, chairman, reported [36] in 1927. An extensive study of 7 and 8 year elementary systems had been conducted by the commission in Maryland counties, in a considerable number of city school systems of the United States, and in Ottawa and Toronto, Canada. The findings of the investigation were: That pupils in 7-year elementary systems completed school at an earlier age than in 8-year systems; that, while graduates of the 7-year schools were sufficiently well prepared to

[35] Proceedings of the Association of Colleges and Secondary Schools of the Southern States, March, 1928. See pp. 219–220.

[36] Report of the Commission on Length of Elementary Education. Published by the University of Chicago as Supplementary Educational Monograph No. 34, November, 1927.

enter high school, test results showed a slight superiority of pupils from 8-grade systems; that these differences tended to disappear when the records of pupils were followed into normal schools and colleges. The following interpretation of the findings is quoted from the report: [37]

> The commission which prepared this report has been led by its investigations and discussions to the belief that a proper understanding of the function of the elementary school will result in a very general reduction of the time devoted to rudimentary subjects and will result also in an earlier opening of high-school opportunities to all pupils. In other words, it is the belief of the commission that the evolution of the American educational system calls for a more general and a more rapid advancement of pupils into higher courses.

It appears, therefore, that two principal tendencies are operative in the matter of length of the period of schooling. One of these would add two years to the public-school course by providing, after high school, two years of training in junior college; the other would shorten the period of preparation by eliminating one or more years from the elementary-high-school course.

The opposing views are probably not so far apart as may appear at first sight. The belief is not uncommon that by careful organization and by rigorous elimination of nonessentials and duplications it may be possible to complete in 12 years all the necessary content with which pupils are now required to spend 14 years. That this is a practicable plan for students of superior ability few will question; that it is possible of realization with the average student is the contention of many; that students of all levels of ability should be allowed to progress at their natural rate as individuals is an ideal often voiced but infrequently realized.

RESEARCH AND SECONDARY EDUCATION

The amount of research conducted in secondary education is very large. Walter S. Monroe [38] lists 2,999 theses accepted during two years, 1925–1927, for master's and doctor's degrees in education. Of these, 335 are classified as dealing exclusively with secondary education. Of the 24 major subjects into which Doctor Monroe classifies education the only two for which larger numbers of studies are reported are educational psychology and a consolidated section given to special subjects of the curriculum. In a recent bulletin of the Bureau of Education [39] 103 of 1,478 research studies are classified under secondary education; here the studies in secondary education

---

[37] Ibid., p. 136.

[38] Titles of Master's and Doctor's Theses in Education Accepted by Colleges and Universities in the United States Between October 15, 1925, and October 15, 1927. College of Education, University of Illinois, Urbana.

[39] Bulletin of the Bureau of Education, 1928, No. 22, Bibliography of Research Studies in Education, 1926–27.

outnumber all other classifications except a grouping under the general heading, " Special subjects of the curriculum."

Inquiry into the type of research which is carried on indicates that the majority of the studies relate to past and present practice in organization of schools, curriculum, grading of pupils, retardation and elimination, student activities, training and experience of teachers, school costs, and the like. A considerable group of studies by candidates for degrees deals with early development and current conditions in State and local school systems. The reports of research bureaus in cities and States frequently give results of intelligence and achievement testing programs.

Experimental work under conditions more or less closely controlled is receiving some attention. According to reports from 242 school systems the experiments most frequently concern adaptations made to care for individual differences; teaching methods are next in frequency; size of class is third. A total of 42 experiments on 30 different subjects were reported by the 242 school systems. Some of the experiments are so described as to suggest trial of a new device or method rather than any organized attempt at measuring and comparing results of alternative procedures.

The situation is that, with the exception of comparatively few systems, the public schools have been so busily engaged with the daily problems of providing for the ever-increasing numbers of a heterogeneous pupil personnel that scientific investigations looking toward evolution of new approaches and evaluation of old ones have been left to workers in experimental schools and in schools of education. Experimentation has thus for the most part been conducted by students in educational institutions. The experiments usually are of short duration, involve relatively few cases, and in their results are not comparable with other experiments carried on in the same field.

It appears that there is opportunity here for educational leadership. Thousands of teachers and administrators throughout the United States are eager and able to join a great cooperative undertaking for the solution of problems related to secondary education. It is entirely practicable to select certain such problems for investigation and to conduct studies for their solution in many schools contemporaneously and on a comparable basis. With authorization by Congress of an appropriation of $225,000 for a 3-year study of secondary education beginning July 1, 1929, it should be possible to shed light on a trail which is now too often shrouded in darkness.

○