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BY
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THE FUNCTION AND NEEDS OF SCHOOLS OF EDUCATION IN UNIVERSITIES AND COLLEGES

BY

EDWIN A. ALDERMAN

THE purpose of this paper is to ascertain as definitely as the present stage of educational development will permit, and to state as clearly as may be done in a brief compass:

I. What should be the precise and definite aims of a school or college of education within a university, especially a state university considered as the head of a modern democratic school system;

II. What should be the essential equipment, both physical and instructional, of such a school or college, whereby it may reasonably hope to achieve those aims;

III. Whether observation schools, practical work in schools, and experimental schools are essential adjuncts to such schools or colleges, and, if so, what are the best practical methods for obtaining experience in observation, practice in teaching, and the scientific spirit in investigation as part of student training.

In addition to such personal experience as I possess, and in further addition to such literature of the subject as is available, I prepared and sent out to about one hundred leading American teachers, scholars, and administrators, in different fields of educational work, the inevitable questionnaire, embodying the above questions and asking a statement of their judgment. Answers were received from seventy-eight persons. This paper is, in a measure, a digest or analysis—a sort of composite judgment—of these workers in various fields. There was general agreement among them all that the existence of such a school or college satisfies both the historical function and very vital social needs of our universities.

Historically, as early as the end of the sixteenth century, Richard Mulcaster, an English schoolmaster, is found pleading for a "College of Traine" and asking the pointed question: "Why should not leaders be well provided for to continue their whole life in school, as Divines, Lawyers, and Physicians do in their several professions?" Germany led the way by founding the first pedagogical seminary in 1619 at Köthen under Ratich. This foundation gave birth to the normal school development on the continent of Europe, and later to the establishment of chairs in seminaries within universities for the systematic study of educational problems. In Germany, as later in America, the need for the training of elementary teachers first suggested professional training and our first normal schools, established in Massachusetts and New York in 1839, were founded in response to an outside demand to satisfy this need and to the fact, then becoming evident, that a new and vigorous nation had been born and must be perpetuated. Agencies for the professional training of secondary teachers came more slowly. The expanding curricula of normal schools, providing for the instruction of secondary teachers, suggested to the colleges, especially the state universities of the West, the creation of normal departments; and between 1845 and 1870 Henry Barnard and Brown University led in the establishment of such departments in a number of American colleges. These departments were in no sense professional schools but rather tentative efforts to train teachers in school procedure and methods. This normal school movement, both in colleges and normal schools proper, originated with the people and as a result of the pressure of public need, and had no better defined purpose than the training of teachers of all grades, but especially the elementary grades of school work. Passing through a natural process of evolution under changing conditions of education, the movement in the universities eventually came to concern itself with the professional preparation of secondary teachers. By the last quarter of the nineteenth century, this new impulse had taken very definite shape in Great Britain and America. Single chairs for professional teacher-training had been established at Edinburgh and Glasgow in the early 'seventies, and in 1879, under William H. Payne, Michigan became the pioneer of such training in America by establishing a professorship in the "Science and Art of Teaching." The pur-

pose of this pioneer school was thus, for the time, admirably stated:

1. To fit university students for the higher positions in the public school service,
2. To promote the study of educational science,
3. To teach the history of education and of educational systems and doctrines,
4. To secure to teaching the rights, prerogatives, and advantages of a profession,
5. To give a more perfect unity to our state educational system by bringing the secondary schools into closer relations to the university.

The new departure was grounded on the principle that the primary function of the university was to teach and to supply the world with teachers. There was a foreshadowing in its origin of the widening processes of educational work as manifested in our present complicated organization, involving supervision, school superintendencies, and large executive fields. By the beginning of the twentieth century, it was perfectly clear that a new faculty had been created within our universities, informed with an humble but scientific spirit, confident of its potential value, and shed of raw empiricism and charlatanism. This faculty, being of professional character, belonged logically in strong universities where many faculties existed and all complemented and reinforced one another. This new faculty had come into being despite the strong traditional disinclination to admit new subjects into the circle of liberal training, and despite the stronger belief, among those who taught to adults highly but simply organized subjects like mathematics and Latin, that the subject matter was all in all and that the teacher was born, not made. Such institutions as Teachers College of Columbia, George Peabody College for Teachers at Nashville, and the Colleges or Schools of Education in the Universities of Chicago, Illinois, California, Washington, Missouri, and Kansas, and in Clark and Harvard Universities, to mention a few notable examples, meant the end of mere toleration and the beginning of coördinate work in preparation for the most vital of all professions.¹ Slowly but surely the immensity of the

¹ For a statement in regard to the present organization of professional training for teachers in American Universities, see Appendix, page 30.

business of teaching as the greatest and most daring of human industries took hold of our democratic imagination. We saw three-fourths of a million teachers—more than the combined force of clergymen, lawyers, doctors, engineers—attempting to instruct twenty million young people at an annual cost of \$500,000,000. Such a task as this was no work for amateurs. We saw the schools of today outgrowing mere literary instruction and the exaltation of memory, and seeking to train the eye, the hand, the senses. We saw, furthermore, with the mind's eye, the schools of tomorrow, in town and country, working away from a curriculum adapted to a small and specialized class toward one which should be truly representative of the needs and conditions of a society made over in spirit and method by steam, the gas engine, electricity, natural science, immigration, and urban development. A great readjustment was at hand as to the very nature of schooling and curricula. A fresh realization of the fact that no one knew, after ages of effort, the best way to teach a child anything, took possession of the minds of thoughtful teachers and anxious parents. It was realized, as patient old Pestalozzi tried to teach his generation, that knowledge, apart from its social bearings, was fairly useless. Work as an educational agent came to supplant bookish learning. New educational forms—vocational, manual, continuation schools—shaped themselves more or less clearly in the thought of society, and the teacher as a creator and moulder of life, as well as a classroom tactician, began to appear.

In the states of the South, attempting to reconquer their old place in an industrial order, these facts made great appeal. After providing for university education to supply the precious stuff of scholarship to its youth and normal school training for its elementary teachers, these states turned their attention to education as a university subject with the purpose of developing general technical educational knowledge and determining wise educational policies or programs in their regions. Chairs of education in the universities of the South have existed for thirty years. Twenty-three years ago, the writer of this paper held such a chair in the University of North Carolina, somewhat blindly feeling after a broader background of educational knowledge and truer craftsmanship in teaching. Today all Southern universities maintain a school or department of education. The Peabody Education

Fund has, in recent years, granted \$40,000 to each of the following universities, on condition that the university in each case contribute for the perpetual maintenance of the School of Education at least \$10,000, annually:

University of Alabama
 University of Arkansas
 University of Florida
 University of Georgia
 State University of Kentucky
 Louisiana State University
 University of Mississippi
 University of North Carolina
 University of Virginia

The following have, at present, taken advantage of the offer:

University of Alabama
 University of Florida
 University of Georgia
 University of North Carolina
 University of Virginia

This gift with its conditions has stimulated all the universities to greater practical service. These departments at this moment seem to me to possess a peculiar interest and to deserve thoughtful attention, for they are just entering upon their careers as organized and definite agencies.

Having thus briefly outlined the origin, progress, and present aspect of education as a professional study, I shall proceed to answer in order the stated inquiries of this investigation.

I. THE DEFINITE AIMS OF DEPARTMENTS OF EDUCATION

The definite aims of schools of education in our universities, appear to me to be fivefold in nature:

1. To afford opportunity for the study of education as an important function of society, and as of interest consequently to all university students whether they intend to become teachers or not, and tending frequently by its social appeal to draw into the profession increasing numbers of men of superior attainments. A new era in education will dawn when parents and citizens generally learn how to ask *why* intelligently and coöperatively as to all edu-

cational technique. Public sympathy and support of educational administration, in its larger directive aspects, will fall upon the shoulders of college-bred men and women as a duty and privilege of democratic citizenship. An appreciation of modern educational thought and tendency by such men and women will greatly increase its power and clarify its aims. I know of no better discipline to lead university students into an appreciation of education as a social function and of schools as social institutions. In this respect it may be confidently claimed that education is as fruitful a subject of academic study as economic or political science.

2. To give the necessary technical training for teaching or administration, whether special or advanced in character, to

- (a) University students, with or without experience, who intend to teach;
- (b) Secondary school principals and teachers;

This second purpose is now and should be for a decade a primary aim of educational departments in the nation—for the high school must in its final development become a sort of people's college from which the one-tenth of our youth now able to reach it will receive their entire school training.

- (c) Normal school teachers and principals;
- (d) College teachers of education;
- (e) College teachers and administrators.

College professors have rarely studied their profession as a profession. They have only studied the subjects which they intend to teach. It is doubtful if at the beginning of their careers, their teaching skill equals the teaching skill of the trained high school instructors. Every college teacher would profit greatly by studying thoroughly the historical and contemporary problems of education, and of higher education in particular, together with the methods of college teaching. On the basis of such study the college professor would not only be a better teacher of his own subject, but a more effective participant in determining educational policies and a more sympathetic coöperator with the secondary schools.

- (f) Superintendents, supervisors, and other executives of schools of all grades in city, county, or district.

The majority of the experts consulted did not deem it incumbent upon the university to prepare teachers of elementary grades. This

specific task belongs, they think, to the normal school. The problems of the two levels, though equally important, are essentially different, and emphasis is placed on this point not to circumscribe but to enhance the essential function of the normal school.

In my judgment, though mentioned last, the above training constitutes a most important field of opportunity for schools of education. Genuine constructive service is to be performed and really scientific results are to be attained in the work of supervision and administration and in the acquisition of skill to guide teachers and school authorities in testing and measuring their work. In the fields covered by the history of education and psychology, essentially important and stimulating as they may be made, there exists a certain tendency, owing to their similarity in content to the cultural subjects, to present them in such generalized form as to yield unfruitful results. But in the domain of administration and scientific evaluation, the situation is quite different. Here is something big, indefinite, disorganized, waiting for the very genius of the American mind and temperament, properly trained, to place it in order and to give it enduring form. Here is a career offering rewards in honor, service, and money, comparable, if not superior, to law or medicine, awaiting young men or women trained to organize and administer schools or systems with power and insight. Mr. Samuel P. Orth has recently declared that the position of Superintendent of Schools in American cities demands the learning of a college president, the consecration of a clergyman, the wisdom of a judge, the executive talents of a financier, the patience of a church janitor, the humility of a deacon, and the craftiness of a politician. Surely such a many-sided job will one day undergo sub-division and offer the highest inducements to ambition and intelligence.

3. To develop scientific methods of testing school work and to furnish demonstrations of the way in which these methods may be applied, thus developing a spirit of scientific observation and experimentation tending to increase our knowledge of the science and art of education.

4. To become a centre of educational influence to which teachers of all grades and kinds should be able to resort for information, inspiration, and all kinds of educational guidance. Such a school

would miss a most definite aim if it failed to achieve this kind of usefulness. A state university should keep itself sympathetically informed of the widening purposes and improving methods of the state school system of which it is an organic part. A school of education ought, therefore, to bring to the different faculties of a university the knowledge, interest, and coöperation with the state system, without which the institution cannot properly fulfil its function.

5. To carry out to the general public beyond university walls clearer ideas about educational work and a better conception of civic duty by furnishing information and stimulus through lectures, bulletins, visitations, technical guidance and advice on such questions as location, equipment, and construction of school buildings, medical inspection, community sanitation, consolidation of schools, formulation of study courses, playgrounds, manual training, school libraries.

To sum up, then, it may be claimed, at this point, that a school or college of education in a university should be a professional school like the schools of medicine, engineering, and law, not a chair of education co-equal with single subjects like mathematics or Latin. The analogy, of course, as regards medicine certainly is not quite exact, for the college of education remains in closer contact with the science departments at all levels. It should aim to prepare young men and women of liberal culture for leadership in scientific educational work, through whom the whole educational process from the primary school to the university may be tied in coöperative unity, and the whole process ordered along such scientific lines as are, at the time, clearly apprehended. What is deemed scientific or valid in education may, of course, change with time. One hundred and forty years ago the aim of the process would probably have been stated in utterly different terms by Rousseau; a hundred years ago very differently, perhaps, by Goethe; and certainly a decade ago Dr. William T. Harris would have expressed it in different forms. Through all these changes of particular aim the university must simply confront the whole problem with the whole of that which it has to contribute.

This college of education should contain both undergraduate and graduate courses. The undergraduate college would have as its function (1) to train young men and women to practise skill-

II.

fully the art of teaching; (2) to give instruction in the processes of administration and supervision; (3) to furnish teacher-candidates with the technique and spirit which will enable them to measure the results of their work. Such a course should culminate in the baccalaureate degree in education, and should comprise at least thirty semester hours of professional work or one-fourth of the total required for the bachelor's degree, in addition to the necessary observation and apprentice teaching.

The graduate school or college, while undertaking, on the basis of the bachelor's degree or equivalent training, wider instruction in teaching and supervision, would have for its chief function research and directed experimentation, and its instruction should issue in the master's or doctor's degree. The details of this organization must be here omitted, but attention is called to the graduate organizations of Columbia, Chicago, Harvard, Peabody, and Illinois, and the undergraduate organization of the University of Washington.

II. THE ESSENTIAL EQUIPMENT FOR DEPARTMENTS OF EDUCATION

It is difficult to state in precise form just what should be the essential equipment for the accomplishment of these defined aims of professional schools of education. The academic purposes of a department of education may be realized with one or two professors, dealing with the history, psychology, and social aspects of the subject. Indeed a single, able, purposeful man like Hanus at Harvard, or Payne at Michigan, or Sadler in England, may achieve much by creating an atmosphere and illustrating a spirit, but a professional school needs a personnel and a material equipment adequate to its aim. The minimum instructional staff necessary for such work will also depend in some measure on the extent to which other departments are equipped to train teachers. There should, unquestionably, be courses offered in methods of teaching history, biology, Latin, English, and other individual subjects. Such courses may be supplied in two ways:

1. They may be offered solely by the members of the staff of the school of education, and this disposition of this phase of the work is strongly advocated by a majority of the leaders in professional training. Their contention is that it is inexpedient to use academic professors in organic connection with schools of

education because of fundamental differences in point of view. The academic professor is primarily concerned with the content of his subject and his finest aim is, by research, to extend the boundaries of that content. The organization of material for presentation to the learning mind and the details of the procedure of presentation are not to him matters of primary significance. In short, he is engrossed with teaching as a means of spreading and increasing knowledge and not with teaching as an act of professional public service.

2. The academic departments dealing with the subject-matter may offer certain courses in methods of teaching given subjects, provided that the professors giving them be chosen by the school of education and be under the control of that school. The academic professors so chosen should be selected by reason of their special skill in teaching and of their proved interest in teaching as a professional task. It is idle to deny that the colleges contain a certain proportion of such men and it would seem wise, as well as expedient, to make use of them lest otherwise an iron wall of misunderstanding and even active ill-will arise between those who actually teach men and those who are seeking to teach men to teach. It is probably true that the average academic professor is unfitted by inclination and point of view for rendering satisfactory service in professional schools of education, but whenever one is found whose genius and aptitudes reach out toward that field, his acquisition seems to me a clear gain. Assuming that reasonable facilities for academic preparation have been provided by the college of arts and science, I venture to suggest the following as a minimum essential equipment of an allied college or school of education in a university, and in this suggestion my correspondents are in practical agreement. By minimum, I do not mean the very smallest number of instructors and the most restricted physical equipment under which the work can be carried to any sort of respectable accomplishment, but rather such a staff of instructors and such material as will guarantee genuine results and a momentum of growth which will arrest the public attention and satisfy the public need. The statement is based on an estimated registration of about one hundred students.

1. A building containing:

(a) Properly furnished classrooms and offices,

- (b) A simple laboratory for educational psychology,
 - (c) An educational library,
 - (d) An educational exhibit room for the display and study of appliances, text books, lantern slides, etc.
 - (e) Equipment for the teaching of home economics and practical arts.
2. A fund available for purchase of books, apparatus, publication of bulletins, traveling expenses of the faculty, clerical help, postage, etc., approximating \$3,000 a year.
3. An administrative and instructorial staff consisting of:
- (a) A Professor of the History and Philosophy of Education,
 - (b) A Professor of Educational Psychology and Methods of Teaching,
 - (c) A Professor of Educational Administration,
 - (d) A Professor of Elementary Education and Rural Education,
 - (e) A Professor of Secondary Education,
 - (f) Three Instructors in the fields of Vocational Education, Practical Arts and Drawing, and Practical Work in Teaching,
 - (g) An Instructor in Statistics and Educational Measurements.

An annual income of \$30,000 will be necessary to provide for this staff, and if the numbers specializing in education increase, the staff must be correspondingly increased.

I have elsewhere defined as one of the aims of a department of education the carrying of technical guidance to advancing community life. In highly developed universities this great service has been separately organized under the general term of academic or university extension. This, of course, is the proper way to handle so great an undertaking, but, in my judgment, in the states of the South at least, and probably in other regions where concerted community effort is not highly developed, the schools or colleges of education should be expected to inaugurate these new and needed activities and conduct them in such fashion as to fix upon states and communities deeply steeped in individualism the principle of concerted action for the common good, the habit of reliance upon expert counsel, and the desire for civic betterment based on exact knowledge. Of course, the major

members of the college of education should all be drawn into field work—state and city surveys—and the proper analogy for their activities should be geological surveys rather than extension work. A certain propagandist work, however, must be done by this department. No other department has the means to be in such close touch with the masses of the people, and in no other way can the confidence of the people be so justly gained. No other department ought to be so able to mould and direct public opinion, so in sympathy with popular needs, so likely, as I have said, to fasten upon the state the fashion of expecting guidance from its seminaries of learning, and in such a position to interpret to their colleagues within universities, to picked youth, to publicists and communities, the unity and full meaning of the whole educational purpose of democracy. I rank this sort of endeavor in the same class with so much of the pioneer work attempted by the General Education Board which, when set going, will generally be taken over in time by the state and carried forward as a permanent state agency. I conceive the content of such extension work to be in brief:

- (a) Correspondence—advisory—state—local—individual,
- (b) Summer schools,
- (c) Conferences (state and local),
- (d) The promotion of clubs for the intimate study, by students, of state and county affairs,
- (e) Educational publications (bulletins, etc.)
- (f) Organization of high school activities (literary societies, athletics, honor leagues),
- (g) Library advice and loans,
- (h) Educational research (state and local),
- (i) Participation in educational campaigns (state and local) and contribution to educational legislation,
- (j) Lectures (general and technical).

And I conceive the minimum staff for such service to be:

- (a) A Director,
- (b) One special agent who might give all of his time to extra-mural work,
- (c) Clerical assistance.

I estimate the annual cost of the initial undertaking to be around the sum of \$7,500.

It is hardly necessary to add that not a great many schools of education in the nation are attaining, or even attempting, the aims which I have here outlined. The South, if I may venture to localize in such a *discussion* as this, for the reason that I know best this field and because of the interest taken by the General Education Board in that region, has yet to realize the tremendous educational worth of such an undertaking when properly organized and equipped.

Owing to the demands made upon the treasuries of many of our states by the public schools, the agricultural schools, the county high schools, and the normal schools, some years will probably elapse before these departments can hope to receive from such states a sufficient appropriation to enable them to achieve the ends sought, if the states are at the same time to supply other needs.

III. OBSERVATION AND PRACTICAL WORK IN DEPARTMENTS OF EDUCATION

The most hopeful sign of the existence of a sound scientific spirit in modern American education I conceive to be the unanimous and enthusiastic belief of all my correspondents and of all recent expression of current opinion that schools of observation, practical work or practice teaching, as it is sometimes untactfully called, and experimentation are necessary adjuncts of a professional school for the training of teachers. In fact, the common judgment of American educational opinion about works down to the conviction that a college of education existing in a university, without some sort of close connection with a school or schools which may serve as a sort of clinic for demonstration and practice and as an agency of experimentation, is seriously incomplete and genuinely hampered in its work. As medical colleges have given up the practice of training physicians without hospitals, as agricultural colleges no longer attempt to train farmers without farms, as West Point relies on drill and practice to develop skill in military technique, as engineering schools fix their theoretical instruction by the use of basic tools and machines, as general science depends upon the laboratory for definite results, so whatever truths and principles about teaching exist can be invigorated and, in most cases, gained by the learner only through the habits of observation, experimentation, and testing. The average teacher teaches

as he was taught, and not as he is taught theoretically to teach, and that simply means that he unconsciously applies to his job what skill he possesses as the result of undirected observation. The real question or group of questions for us to solve is how shall prospective teachers get observation and practice in their proposed art under the most favorable conditions, and how, further, if they be gifted with greatly needed human qualities like sympathy, personality, genius for approach to adolescence, and insight, can they be put in the way of investigating the learning process, and, perchance, of discovering new and wise ways to organize the material of knowledge and to present it to the learning mind? Tests and forethought as to the nature of our educational material must take the place of guessing and patchwork. It is fair to say that at present apprentice work in practical teaching with secondary pupils is less satisfactorily administered than any other phase of teacher-training. It is even claimed that 10 per cent. of the \$500,000,000 spent for education in the United States is devoted to re-teaching children what they have already been taught but have failed to learn.

The methods by which practical work in the training of teachers can be wisely carried on will depend upon the resources of the university and upon surrounding communities. An institution located in or near a large city or numerous towns can and will use different methods from one located in a smaller community.

There will be several classes of students to be provided for:

- (a) Students in their junior and senior years who have never taught,
- (b) Students who have had experience but without supervision,
- (c) Students who are preparing for supervisory and administrative positions.

Class (a) should have a maximum of observation and practice; class (b) should have more observation work and needs less practice; class (c) will usually have had experience and should have opportunities for experimentation and testing, for observation of demonstration lessons, for solving problems connected with subject-matter and methods, and some supervision of inexperienced teachers.

The practical work sought after in colleges of education logically orders itself under three heads:

1. Observation,
2. Supervised or directed teaching,
3. Experimentation and investigation.

Observation is that phase of practical work which involves purposeful study under direction and supervision of the work of experienced teachers under normal conditions. It may be mere observation, which has a minimum value, or it may be practice under close supervision in a special school (Chicago), which has highest value, or it may be observation and practice in public schools, city and rural, under coöperative agreement with these schools and under supervision of a representative of the department (Harvard). This latter is the easiest and cheapest method and a necessary one, I think, no matter how many supplementary methods may be established and employed, not only because it is sensible to take advantage of the most available agencies, but because it is essential that candidate-teachers come in contact with actual school conditions for a considerable period of time, and this is the only method which secures this end.

The most serious objection to it is that it cannot be entirely controlled by the school of education. Such coöperation may be sought after in several ways:

(a) By supplementing the salaries of the teachers whose work is to be observed and under whom practice teaching is to be done, and, in addition, by having the work under the general supervision and direction of a representative of the department of education, and as closely controlled as possible by it;

(b) By employing specialists as heads of the different departments in the schools in which such observation and teaching is to be done—half the salary to be paid by the department of education (Iowa Plan). These specialists, in addition to directing the observation and practice, should teach one class of three hours a week in special methods in their subjects. This plan would not be feasible under all circumstances.

Supervised or directed teaching is the second process in this scheme and means actual teaching under direction for at least an hour a day. This should include at least two subjects in at least two grades (for instance, first and fourth in the high school). In some institutions senior students are sent to selected high schools in different portions of the state to teach one session under the

direction of the principal with such supervision as can be given by the department of education.

Perhaps the most feasible arrangement which can be made in the majority of colleges and universities is for the university to cooperate with a public school system, including the high school, by contributing a portion of the expenses and thereby securing some right, in coöperation with the school authorities, to direct the work, to use student teachers as apprentices, and to carry on experiments. I do not think I can better illustrate the working of three of these forms of practical teacher-training than by giving a brief summary of the methods in use in the University of Pittsburgh and in Harvard University, as reported by Professor C. B. Robertson, of Pittsburgh, and Professor Alexander J. Inglis, of Harvard.

The Pittsburgh plan requires all juniors and seniors in the School of Education who are without satisfactory experience to serve an apprenticeship in teaching as a part of their professional training. The juniors do but little systematic observation; in fact, most of the students do none. They are sent into near-by schools where they act as apprentices or assistants to the regular teachers of a department, usually the department representing their major subject. Here the students participate in classroom management and in most cases gradually work into the coaching of backward groups, care of laboratory sections, or supervision of study, and eventually take the recitation work under supervision part of the time. In certain cases some success has been had by giving members of the junior class charge of seventh and eighth grade classes for certain periods daily. The value of this form of junior experience seems to show to good advantage in the senior year when the student assumes full responsibility for the conduct of a class.

The juniors are carefully watched, regular reports being made by the student, department head, and supervisor from the university. Regular group conferences are held weekly at which the experiences of the apprentice teachers are discussed.

The practice work of the senior year consists of assuming complete charge of one or two classes daily in public and private schools that have made application for apprentice teachers. One of the classes taught *must* be in the student's major subject.

These cadet teachers are subject to all conditions and regulations of the regular teacher as to regularity of service, responsibility for the success of the pupils under their control, adjustment to and coöperation in the school spirit. They are subject to the school authorities under whom they work and are subject to constant *unannounced* supervision by the faculty of the school of education. At the weekly conference, which in a general way conforms to the junior conference, these cadet teachers submit in advance to the supervisor of apprentice teaching an outline or scheme for the work of each week. There is a constant effort to make the work practical. Courses in administration and pedagogy are given in the second semester of the senior year and are the outgrowth and climax of the cadet work.

The schools receiving the service of the apprentice pay only the actual cost of his transportation, and for every cadet teacher a school receives a limited scholarship for the use of one of its teachers in the school of education.

Plans have been consummated whereby certain teachers in selected schools are subsidized on condition that they give special attention to the cadet group.

Although the Harvard system for training secondary school teachers has many points in common with the Pittsburgh plan, it differs in other respects. At present the courses at Harvard are specifically designed for seniors and graduate students, the present registration being about equally divided between seniors and graduate students.

No student is admitted to apprentice courses in secondary school teaching unless he has taken, or is taking, the general course in the principles of secondary education. In addition he is supposed to have taken courses in (a) the principles of education, (b) the history of education, and (c) general and educational psychology. Further, he is required to present evidence (usually from instructors in other departments of the university) that he has manifested sufficient knowledge of the subject or subjects which he intends to teach in the secondary school. He is admitted to the apprentice teaching course at the option of the instructor in charge of that course, with due reference to his personality and other qualifications.

The course in the principles of secondary education is so or-

ganized that during the first half-year those who are planning to enter the course of apprentice teaching make systematic observation of teaching and class management in the secondary schools in the vicinity of the university. Previous to this time these students have been required to observe in all grades, elementary and secondary, in order to get a general survey of the whole. During the two months or one month before the close of the first semester this observation is made in the class which the student will conduct during the second semester.

The course in apprentice teaching comes in the second semester of the senior year. The work of the course consists primarily of actual teaching in one of the secondary schools in the vicinity of the university but the class meets twice a week as a whole for the discussion of problems and principles of classroom practice definitely connected with the student's experience in his practice teaching. Principles of method are considered in direct connection with practice so that theory and practice may be closely related.

Special courses in special methods are not given at Harvard University at the present time. Direction in connection with special methods is confined to the coöperation of heads of departments and qualified teachers in the schools in which the apprentice teaching is done.

Within easy reach of the university are more than fifty different high schools, with more than 1,000 teachers and enrolling more than 20,000 secondary school pupils, open to observation by the students of the university; and systematic observation is required of prospective secondary school teachers enrolled in the division of education. This group of schools includes general high schools, manual training high schools, technical high schools, commercial high schools, clerical high schools, practical arts high schools for girls, mechanic arts high schools, textile high schools, trade schools, vocational high schools, junior and senior high schools, private high schools of every description, public Latin schools, etc.

At present, contract agreements exist between the university and the school committees of cities within easy reach of the university. Apprentice teaching is provided for in those cities by these formal contracts. In accordance with the agreements made between the university and the school committees of these cities, candidates are assigned to practice-teaching positions in the

various cities after conference with the school authorities, who have the right to reject any candidate for satisfactory reasons.

The senior assigned to a position in any school, after a period of partial control and responsibility, assumes full responsibility of a single class during the last half of the school year, always under the supervision and control of the teacher assigned for that purpose. His period of service lasts for about eighteen weeks and the number of periods which he teaches varies from three to five per week according to the subject. Thus his classroom experience normally varies from fifty-four to ninety school periods.

The supervision and direction of the work of the apprentice teacher is shared by the teacher assigned for that purpose (usually the head of the department in the school), the principal of the school, and the college instructor in charge, with his assistants. By far the greatest share of the supervision rests with the teacher who is constantly in charge of the student's teaching.

Arrangements have recently been made by the division of education with the Boston School Committee whereby properly qualified students may act as assistants to teachers in the high schools of Boston, assuming partial responsibility for a given class. Such arrangements do not, however, provide for the amount of training deemed desirable. It is necessary to supplement such training by practical work in other schools where students are charged with larger responsibility. The essential disciplines sought in all this work are the disciplines of observation, supervision, the actual doing of things, and criticism. The chief defects of all this elaborate effort to provide practical training in teaching for teacher-candidates are:

1. Insufficient teaching staff to supervise properly the teaching practice attempted,
2. The difficulty of finding a suitable teacher to supervise the teaching of the subject in which the student has been specializing,
3. The difficulty of obtaining practice, under real masters of methods, in teaching special subjects, e. g., English, chemistry, mathematics.

IV. DEMONSTRATION AND EXPERIMENTATION IN DEPARTMENTS OF EDUCATION

Thus far our attention has been directed to some form of cooperative arrangement between the university and the public

high schools and school systems whereby, under a certain measure of control by the department within the university, various phases of practical work are attempted. It is highly desirable, however, that a university department of education possess a school of its own, not necessarily a model school, but simply one in which it may define and exemplify its ideals, and wherein opportunity for minute studies of educational processes may be immediately at hand. The committee of the Society of College Teachers of Education thus declare their reasons for believing that a Laboratory School—called by them an “Own” School—is necessary to the best results. “An ‘Own’ School is necessary

“(a) Because conditions can be controlled according to standards desired by the University;

“(b) Because demonstration lessons for observation can readily be arranged;

“(c) Because experiments with courses of study and method can be carried on.

“In other words, the peculiar function of a university-controlled school is that of demonstration and experimentation. An ‘Own’ School adjusts environment to the student; a public school compels a student to adjust himself to his environment.” In such a school there will be freedom to contribute to the working out of a wiser elementary and secondary curriculum, freed from the bondage of our present four-hundred-year-old scheme, and liberalized to meet the needs of our own age. The cost of such a school may be what you please. For example, we might take as an attainable type such a school as the William McGuffey School maintained by Teachers College, Miami University. The cost of this school, which offers a full elementary school course and an elaborate high school course, is approximately, as follows:

A. Building and Equipment	\$65,000
B. Maintenance	
(1) Annual Salaries	11,500
(2) Upkeep and Supplies	2,250
	<hr/>
	\$78,750*

Such “Own” schools of high scientific value exist at Columbia, Chicago, Wisconsin, Missouri, Nebraska, Minnesota.

(*The upkeep of such schools may be met in part by tuition, as in Illinois.)

In the course of this study, I repeat, we have reached the conclusion that our universities should contain a new professional school or college for the training of teachers. This school should be so manned with instructors and practical laboratories, and so allied to the work of the college of arts and sciences, as to be able to give a baccalaureate degree in education and a master's and doctor's degree in graduate work, and in every way to rank in usefulness and dignity with the more ancient schools existing to train men for other forms of leadership in our common life.

In view of the sure and rapid way in which the study of education is passing from a deductive to an inductive basis, and in view of the need of proper equipment for these processes, I believe that the most pressing requirements of such colleges or schools are (1) the experimental school or clinic, if I may continue to make use of the medical analogy, within the university, conducted by the college of education; (2) properly organized field or out-service work whereby coöperation may be established between the university experimental school and state, county, and city departments of education. Unless this laboratory exist at the university, and this connection with life itself outside be made, this hopeful educational movement may easily harden into theoretical instruction and out of it issue merely new dogmas instead of old; (3) an ordered scheme by which all students can be put in the way of obtaining practical training in the teaching process.

Slight effort has been made in this paper, it will be observed, to confound or even argue with those who think that teaching cannot be made a subject of special study and instruction. It is fairly clear that Teachers College at Columbia, the School of Education at Chicago, the George Peabody College for Teachers at Nashville and at least a dozen other such institutions in America need no apology. They are the answer to a demand for leadership in the most unorganized but most necessary and costly enterprise ever undertaken by mankind. They are more or less scientific efforts to enable teachers to organize their material in such a way that it has significance not only for their own minds but for the minds of youth. The old assumption simply claimed that every learner should think out a formula as his teacher had thought it out or be branded as a fool. It is not claimed that these schools will ever devise patent formulæ to suit infinite varieties of mind and char-

acter. Their simple virtue lies in the fact that they set out to investigate both general principles and individual differences; and one would fancy that even research teachers and doctors of philosophy would sympathize with them in the task, particularly as it relates itself to a more enlightened organization of the old subject-matter of the curriculum. In the field of organization, as I have elsewhere said, the problem of directing vast educational activities wisely and rationally has become an affair of high statesmanship, and is demanding some intelligent solution. To whom should democracy turn in such a crisis if not to its universities?

The outstanding fact is that there is a universal tendency on the part of all colleges and universities to meet the demand for teachers' courses because these courses tend directly to serve three high ends. They make contribution to science, and this is one of the greatest functions of any university; they set more vital standards for classroom teaching; and they organize and guide the school system. A state should not only expect, but should demand, such guidance from its publicly supported university, and society at large should expect and demand such service from the great private foundations.

No one can deny that education is becoming more keenly conscious of itself as a subject of scientific study, is growing impatient with its ancient and stately forms, and is eager for the application to its processes of those searching methods which have given to agriculture and medicine, and the sciences upon which they are based, such powerful impetus in the last quarter of a century. For example, between general psychology and general methods lie two new fields which attempt to organize psychological knowledge in terms of actual, observed mental development, and to set forth the psychology of learning the common branches like writing, reading, spelling, and arithmetic. Indeed it begins to appear as if the science of education might be as highly organized at the end of the twentieth century as medicine was at its beginning. A very striking evidence of this is the expanding scientific literature emanating directly from schools of education and from bureaus of educational investigation and measurement, in connection with the school systems of the leading American cities. From sixty to seventy-five educational periodicals in English, German, and French, are available in good educational libraries. Six hundred books, published in the last fifteen

years, are now considered indispensable to such library, though, like the physician, the modern teacher's main reliance is on the journals which more and more take on a highly specialized character, and record daily growth and change. The whole character of the educational literature of today differs from that of twenty-five years ago, as a laboratory differs from a pulpit. Investigation is supplanting exhortation and dogma, giving place to analysis of facts. It is the same old process which has marked the blundering but majestic progress of medicine through the ages. Such books as Terman's "The Measurement of Intelligence" and Whipple's "Manual of Mental and Physical Tests" would have been both unthinkable and unreadable a dozen years ago.

Both medicine and education were and are sciences "in posse" rather than "in esse." Both have accumulated a great body of doctrine and tradition, not without value, but representing empiricism, not science. Both have their respective practices which can for distinction be called the art of medicine and the art of education. Both deal with immediate necessities and cannot wait in meeting those necessities until scientific knowledge has traveled its perfect path. In dealing primarily with the body and secondarily with the mind, medicine meets much less individual variation than does education, which deals primarily with the mind and secondarily with the body.

Under the leadership of such men as Meumann in Germany, Binet in France, Winch in England, and Thorndike, Judd, Dewey, Ayres, Cubberley, McMurry, and others in America, education as a science has now a considerable body of proved principles of teaching and administration, growing steadily and modifying slowly but surely the everyday practice of our school systems. But this early progress should not make one lose sight of the fact that a science attempting to systematize and advance a phase of social practice, so complex through a multitude of individual variations, can develop only through the painstaking labor of trained specialists, concentrating for years in limited phases of this great subject and using elaborate experimental and statistical technique.

In conclusion and in amplification of the proposed programme for the organization of the subject matter of education into courses for instruction and clinical purposes, I offer the following scheme based upon a recent summary by Bolton.

officials, teachers, and equipment, of courses, grading, and correlation.

Further groups deal with application of the aforesaid general principles to different divisions of the public schools—kindergarten, elementary, secondary, vocational, etc. Universities naturally give special emphasis to secondary education, as most of their teachers in training expect to go into this field. Altogether, variations within and without the groups here mentioned will continue to be unduly large, until teachers of teachers agree on what to teach.

One phase of educational instruction and research is becoming so significant that a few words may well be devoted to it here. This is the use of standard or standardized tests, especially in the drill subjects of the grammar grades—reading, writing, spelling, arithmetic, and drawing. *Similar tests have not been worked out for the more complex high school subjects, though algebra and foreign languages are being studied by specialists for this purpose.* Carefully selected material, such as the Ayres test in spelling or the Courtis test in arithmetic, is first given to thousands of children in many kinds of schools and the average ability of the children is then found by grades. This more or less national average is used further as a measuring-rod to compare classes, schools, and methods; and by a cautious selection of methods giving higher averages, the general efficiency of a school or schools is increased. Just as industrial corporations have their accurate standards of production, so should schools be able to measure their efficiency by their own standards of production. In order to improve, schools need enlightenment as to the results so far achieved. The tests now being used promise more effective standards in the future, not only in the subjects mentioned but in the entire range of school instruction.

In addition to these tests in school subjects, specialists in America and Europe are trying to work out standard tests of the fundamental abilities of children, in order to grade the kind and degree of normal development at successive ages and also the kind and degree of mental defectiveness. The influence of such tests in the next decade will be vital to educational practice notwithstanding the usual crudity and excess that invariably mark the rise of any new instrument of scientific value, and it is not unlikely that “in-

telligence tests will, in time, become as much a matter of routine in educational procedure as blood counts in physical diagnosis." Perhaps the immediate need in this new and interesting field is not so much the creation of new tests as the creation of trained agencies for putting into wide use over large territories standard tests of approved value so that they may become a part of the average teacher's equipment.

Many American cities have recently carried this test idea to its ultimate by seeking expert and impartial judgment as to the extent to which the potential value of their schools is actually being realized. Local boards, legislative committees, educational foundations, university departments of education, or individuals have been asked to "survey" some part or the whole of an educational system, as in New York City, Springfield (Ill.), Portland (Ore.), Cleveland, and other cities, and in Wisconsin, Vermont, Maryland, Missouri, and other states. Sometimes a survey has been instituted without sufficient consideration of the newness and uncertainty of educational standards, and sometimes the responsibility for a survey has been put in the hands of those whose judgment can hardly be called expert or even impartial in education. But as a whole the surveys have done great service in directing public attention to educational needs, and by degrees the people concerned will understand the necessity for specialization, freedom, patience, and caution in making an extremely difficult diagnosis.

The United States is second to no country in the serious endeavor to develop the science of education. With our many specialists in universities and normal schools, with more and more highly prepared officials and teachers in elementary and secondary schools, with some fine technical journals of international influence, with many annual conferences among the workers, and with the stimulus of several educational foundations, the science of education may hope in the coming time to absorb more specialized effort than any other science, and in that event a certain very genuine world leadership may fall to this nation.

The present need of the world and the more rational direction of educational science are in timely accord. In all ages nations sorely tested or defeated in war, or mistaken in ideals and purposes, have turned from broken adults to unbeaten youth for the realization of their hopes and dreams. Great revolutions, great social changes

—like the Renaissance, the Reformation, the French Revolution —are landmarks in the history of education. Such an hour of almost universal educational reconstruction has struck. Many old traditions and misconceptions will be cleared up and swept away. The opportunity of education thus reformed and redirected and of the science of education which attempts to organize this effort will be very far-reaching and fundamental.

APPENDIX

THE PRESENT ORGANIZATION OF PROFESSIONAL TRAINING FOR TEACHERS IN AMERICAN UNIVERSITIES

The following is a summary of the terminology of the organization in the various universities and colleges as given in full by Professor Fred. E. Bolton in *School and Society* for December 11, 1915.

It will be noted that three general designations of the work attempted are used, viz.: Colleges, Schools, and Departments. These designations are not based on any carefully thought out differences in structure but are more or less loosely used in the absence of any standardized nomenclature. Sometimes college and school mean the same thing and department is sometimes used as synonymous with school. In most universities the study of education is regarded as a department of the college of arts or sciences in the sense that chemistry or physics is a department. A considerable number have named themselves "Schools of Education" but are in reality departments of the college allowing a certain amount of work in education to count towards a degree or to secure certain certificate privileges. Indeed some of the "Colleges" have no distinctive curriculum and offer no teaching degree. Fourteen state universities have what they call Departments of Education. Twenty have what may be called "pseudo schools" with separate curricula of their own, and only six—Florida, Kansas, Missouri, Ohio, Washington, Pennsylvania (not a State University) have what appear to be colleges in the sense of having a really separate organization with a separate degree and curriculum (Alexander, *School Review Monograph No. 6*, Feb. 1915). Columbia and Chicago have highly organized independent organizations leading to special teachers' degrees. New York University and Pittsburgh have independent organizations. Columbia has recently changed to a graduate organization, and Brown has inaugurated a form of graduate work. Inexactness in terminology in both the organization itself and the courses offered is quite baffling. In some cases the curriculum begins with the junior year. In Chicago, Pittsburgh, Ohio, Pennsylvania, and Washington, the work begins with the freshman year and the college of education has control of the entire course.

1. Colleges of Education

Chicago	Minnesota
Colorado	Nebraska
Florida	Ohio
Iowa	Syracuse
	Washington

2. Schools of Education

Alabama	Illinois
Arkansas	Indiana
California	Kansas
Columbia	Missouri
Georgia	New York

2. Schools of Education—*Continued*

North Dakota	South Carolina
Oregon	Tennessee
Pennsylvania	Texas
Pittsburgh	

3. Departments of Education

Brown	Northwestern
Bryn Mawr	Oklahoma
Catholic Univ. of America	Smith
Clark	South Dakota
Dartmouth	Southern California
Harvard	Leland Stanford
Johns Hopkins	Virginia
Idaho	George Washington
Maine	Wellesley
Michigan	West Virginia
Mississippi	Wisconsin
North Carolina	Yale

Wisconsin has a "Course for the Training of Teachers." Nevada, Utah, and Wyoming each has a department and also the state normal school university. (Bolton: *School and Society*)