Report on a Survey of the
N.C.State College of Agri-
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OF THE

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

BY

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U. S. BUREAU OF EDUCATION

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INTRODUCTION

On September 21, 1922, President W. C. Riddick of the North Carolina State College of Agriculture and Engineering wrote to Dr. John J. Tigert, United States Commissioner of Education, stating that, on account of a large growth of the student body at the college and the consequent increase in the faculty, the present administrative organization of the college had become inadequate, and that as soon as possible it was the intention to effect a reorganization which would more adequately meet the present conditions at the institution. In order that the proposed reorganization might be carried out in the most satisfactory manner, President Riddick invited the writer to make a study of the present administrative organization of the college and to make recommendations concerning any changes which should be made in it. I am very sorry that, on account of previous engagements, it was impossible for me to accept this invitation last autumn. It was not, indeed, until the latter part of March, 1923, that I was able to visit the college and to hold the necessary conferences preliminary to outlining a report which I wish to submit herewith. I trust that the president and the board of trustees will find this report useful and suggestive in effecting such administrative reorganization as circumstances seem to make advisable.

In this connection it may be well to point out that the report and recommendations are entirely impersonal. It may be that, on account of individual circumstances, it will be desirable for the board of trustees to continue certain arrangements at the college which do not appear to me logical. Other recommendations, for various reasons, including lack of funds, may not appear possible at this time. These are matters about which no one except the president of the college and the governing board may with propriety advise. Therefore, I shall endeavor to outline in this report a logical and, I believe, workable administrative organization, having in mind the financial limitations of the college for the next two years. Indeed, I am convinced that the adoption of the recommendations in this report or others of similar character will add greatly to the

effectiveness of the college in performing the several lines of service which may reasonably be expected of it by the people of the State.

Preliminary to outlining this report, I spent a week in North Carolina, conferring for the most part with the president and various officials and members of the faculty at the college. Uniformly, I found them willing and anxious to supply all the information possible in order to assist in solving the problems which the survey presented. I wish, therefore, to acknowledge to all these people my most cordial appreciation for the assistance which they have rendered, and for the very coöperative spirit which they showed upon all occasions.

THE COLLEGE AND THE STATE

It would be quite unscientific, and certainly very unwise for me, after so brief a study of the college, to offer any dogmatic or final observations concerning the degree of success which has been attained by the college as a part of the State's system of higher education. It is seldom that a State is not amply repaid for its appropriations through the unremitting and unselfish service of the officials and faculty at its State institutions of higher education. At the North Carolina State College there is every indication of the same unselfish spirit of service on the part of officials and faculty which should characterize the teaching profession everywhere. At the same time it is impossible to escape the feeling that, perhaps through no fault of the personnel at the college, the institution is not performing as extensive a service for the State as it should, and consequently that it does not have as compelling a grip on the people of the State as would be desirable. The likelihood that the service of the institution can be extended much more widely and to a much larger body of citizens in the near future adds interest and zest to the problem of providing an administrative organization which can more adequately meet these obligations than has been possible in the past.

THE BOARD OF TRUSTEES

I understand that, by a recent action of the State Legislature, the board of trustees of the college was increased to sixty. It is assumed that this action was taken primarily to provide a larger group of people who might help to interpret public opinion in the State to the college, and in turn also make known to the people the financial needs of the college, in order that it might secure the necessary appropriations to fulfill its educational obligations most satisfactorily. As a board to consider and formulate the many policies and larger questions of administration at the college, so large a group would be unwise. I assume, therefore, that the leadership, initiative and conduct of the institution will always be left to a small group of the trustees, as for example the present executive committee. Experience everywhere, both in privately controlled and State institutions of higher education, has demonstrated the wisdom and necessity of small boards as governing bodies for higher institutions.

THE RELATION OF RESIDENT TEACHING, RESEARCH, AND EXTENSION WORK

In general, it seems clear that the administrative organization of the college has followed the natural course of growing up with the institution. In recent years, however, there has been a considerable increase in the student body and faculty. As a result, the present organization has become inadequate for the purposes of internal administration of an institution which, it should be realized, is fast approaching the size and diversity of interests of a university in all but name. The growing routine administrative work which has accompanied the increase in student body and faculty has largely been assigned to members of the faculty and faculty committees, with the result that the administrative officials and heads of departments have had quite inadequate time and opportunity to consider internal policies at the college, and especially it has so far proved impossible for them to do more than a minimum of work in the State, other than resident teaching.

To be specific, it is now generally agreed and almost the universal practice at State institutions of higher learning, particularly the land-grant colleges, that the work of the institution should be first and foremost resident teaching, but that extension work and research should be conducted simultaneously and under the same administration as the resident teaching. This arrangement is so generally accepted now that any argument in favor of it would normally be unnecessary and superfluous. However, in this instance, on account of a different practice, it may be well to point out a few salient features in the situation.

It will be recalled that in 1913 the General Assembly of North Carolina authorized the appointment of a "Joint Committee for Agricultural Work," composed of four members each from the board of agriculture and the trustees of the State College of Agriculture and Engineering, together with the Commissioner of Agriculture and the president of the college as *ex-officio* members of the committee. This joint committee was charged with the duty of "preventing duplication and friction and increasing efficiency in agricultural work in the State," and was authorized to supervise and control "such agricultural work of the same kind or kinds as both the Department of Agriculture of the State and the North Carolina College of Agriculture and Mechanic Arts are conducting or may conduct under authority of law, together with any work which either of these institutions may agree to place under the joint committee, and especially shall this joint committee have supervision and control of all experimental and investigational work in agriculture in the State."

"The joint committee shall use such funds as may be designated by law or which may be placed at its disposal by each of the two boards or by any benefactions in the conduct of the work outlined in section three of this report. It shall determine and employ such workers as may be necessary for the conduct of the work, and regulate their salaries and

duties. All actions of the joint committee shall be subject to the approval of the Board of Agriculture and the board of trustees of the North Carolina College of Agriculture and Mechanic Arts."

The arrangement entered into in 1913 has been very beneficial, in that all or practically all danger of duplication of agricultural experiment station work has apparently been removed, and the same may be said concerning agricultural extension activities. There are, however, certain other observations on the arrangement which deserve serious consideration: (1) A State institution can do much better work, even in resident teaching, if extension and research are carried on in conjunction with it. (2) Centralization of the State's educational efforts under a single administration is the most effective and economical manner of conducting all three activities, resident teaching, extension, and research.

In all higher institutions it has now become axiomatic that a teacher, to be most effective, must have some time and opportunity continually to increase in knowledge and appreciation of his subject. Reading and study afford a large part of this opportunity, but it is equally desirable that the teacher have at least some opportunity through research to add to his knowledge of his chosen subject. Otherwise, his growth stops and his enthusiasm lags. In the land-grant colleges, fortunately, through annual Federal subsidies, a great program of agricultural research has been proceeding for a number of years. The opportunity of the teachers of agriculture to participate in and associate closely with those who have carried on this work has literally created the several applied sciences in agriculture during the last thirty years. Any unnatural barrier which is erected between research in agriculture and the teaching of agriculture is like cutting off a stream from its source and expecting it to continue to flow. The experiment station is the fountain of agricultural knowledge, and the college the channel through which it flows to students at the institution. Each is necessary to the other. The college teachers cannot perform their tasks efficiently unless they have the latest information in the rapidly growing and expanding body of agricultural knowledge, and the results attained by the experiment stations are of little value unless they are available for the use of those who are expected to pass them on to students and farmers.

Turning now to what may appear to be the more practical side of the matter. It is apparent at once that the separation of the resident teaching in agriculture from research is wasteful and uneconomical. To be sure, equipment, apparatus, teaching personnel, and animals are not interchangeable at will for teaching and research purposes, but they are available for the use of both in various degrees, depending on circumstances. Whatever unnecessary duplication in equipment, buildings, and animals are resorted to on account of lack of centralization of administration is wasteful and unjustifiable.

If anything more is needed by way of calling attention to the unwisdom of the present arrangement, it would be to point out the fact that

it would be just as logical to erect the engineering experiment station apart from the engineering school of the college. Indeed, there is much research work of engineering character which is even now being carried on by other State organizations. The multiplication of these research agencies with the consequent duplication of laboratories and equipment, and the deadening effect it has on the resident teaching work at the college, can hardly commend itself to anyone acquainted with the facts. The separation of the administration of the agricultural experiment station and the college cannot, in the opinion of any save possibly a very small minority of persons here and there, be justified on the grounds of efficiency or economy, or, indeed, any other fundamental reason.

A similar unsatisfactory situation exists with respect to the extension work in agriculture. The college teachers need to keep in close contact, not only with the sources of knowledge concerning agriculture, but also with the great body of farmers who are the ultimate consumers of this knowledge. Unless there is the closest coöperation between the resident teachers and the rural population, it is practically impossible for the teachers to appreciate adequately the needs and problems of the farm, and it is just as difficult to establish lines of contact which will bring agricultural information to the farmers in the most effective manner.

For these reasons, and many others, there are no other States where the extension service in agriculture is as completely severed from the college of agriculture as in North Carolina. In only one other State, namely, Ohio, is the administration of the experiment station not entirely under the control of the agricultural college. In three other States, namely, New York, Georgia, and Connecticut, there are State experiment stations in addition to the ones conducted in conjunction with the State college of agriculture, but they are a vanishing race and will likely disappear completely very soon. The college, the experiment station, and the extension activities, in the opinion of the college administrators as represented in the Land-Grant College Association, the Department of Agriculture, and the Bureau of Education in Washington, should be combined in a single administration, not for the advantage of any of the three, but because it is the most effective and economical method of performing all three functions.

THE RESIDENT TEACHING FUNCTION OF THE COLLEGE

The divisions of a university or college depend in considerable part on the major functions of the college. In the present case the institution was founded in response to the stimulus of the Federal act of 1862, known as the Morrill Act. For this reason, it is assumed that agriculture and engineering were and will remain two of the main functions of the college. There is nothing in the nature of the case, however, why the several States accepting the provisions of the Morrill Act may not, as circumstances demand, also establish other functions of equal impor-

tance at the so-called land-grant colleges, and during the sixty years since the passage of the Morrill Act all, with perhaps one exception, have done so.

In addition to agriculture and engineering, there are at least four fields of work closely related to agriculture and engineering, on the one hand, and to recent economic, industrial, and educational progress in the State on the other, which deserve serious consideration as major lines of service of possibly equal importance with agriculture and engineering: (1) general science; (2) rural economics and business administration; (3) textile engineering and manufactures; (4) teacher training.

The basic physical and biological sciences deserve to be encouraged and promoted at the college, not only for their actual values, but because the progress which can be attained in the applied sciences depends in the future, as in the past, on the development of the basic sciences which underlie them. In this way they are a very important factor in determining the degree of success which can be attained in the applied-science curricula.

The State of North Carolina has recently been engaging in a great forward movement to improve the quality of the teachers in the elementary and secondary schools. All the higher institutions are being called upon to contribute their utmost toward helping the State to accomplish this great task. There is every reason to assume that the North Carolina College of Agriculture and Engineering should not only train the teachers of agriculture in the secondary schools, but also that it should make provision for supplying teachers of manual arts and industries, together with a considerable number of science teachers. The number of teachers needed in these fields will doubtless increase considerably in the next few years, and the college should be prepared to do its part in training them.

In establishing a new administrative organization at the college it may not be expedient at this time to recognize all six of these fields of higher education as major divisions of the college. For example, it is felt that, for the present, textile engineering and manufactures may continue as a part of the engineering group of departments. Ultimately, it should probably become a division on a parity with the other four which have been named.

It is recommended, therefore, that four major divisions be established, as follows: (1) agriculture; (2) engineering; (3) general science; (4) social science and business administration. In charge of each one of these divisions there should be a dean, responsible to the president for the administration of the division. Each division should consist of a number of departments, with heads of departments and such other members of the faculty as are required.

SHORT COURSES

It would not be difficult to demonstrate that there are entirely insufficient opportunities in America for the graduates of high schools and other young people eighteen years of age or over to pursue technical courses of study of less than four years in length. Somehow we have developed the tradition that all or practically all high-school graduates who continue their education should do so in four-year courses of study in the typical college or university. One of the most serious weaknesses of the American system of education is that we have not so far found a way of developing on an extensive scale technical courses of one, two, and three years duration. Undoubtedly, very serious efforts should be exerted in that direction in every State in the Union.

The State universities and colleges may not really be the best places to develop this type of education, but at present they are in most States the only places where they can be developed. Moreover, at these institutions, including this college, there is an extensive equipment which can be used very easily and profitably for short courses. It is believed that the college has obligations in this field of education which ought to be promoted more vigorously. In this type of work, however, the same as with the four-year curricula, satisfactory results may not be expected unless it is actively and enthusiastically promoted by one or more persons who devote the major portion of their time to it. For this reason, it is suggested that a vice-director of short courses in agriculture and another in mechanic arts be appointed, and that they be charged with the promotion and development of the short courses in these divisions. So far as possible, this should be done in coöperation with the existing faculty and through the use of the present equipment, but wherever necessary and desirable there should be no hesitation in adding full-time instructors for this type of work and increasing the equipment.

If these short courses are conducted vigorously it is believed that a number of students now registering in the four-year courses, but who for a variety of reasons do not continue their work to graduation, would welcome the opportunity to finish a short course preparatory to positions on the semi-professional level.

Another type of short courses which has been given very successfully at the college is the summer school. The unusual demand for better teacher preparation in North Carolina during the last few years has been responded to admirably by the organization of a summer school. This work links up with one of the growing major activities of the institution, namely, the preparation of teachers.

As a matter of practical administration the courses which are given in the summer school should all be classified as subjects for college credit, for credit toward teachers' certificates, for credit as high school units, etc. All such courses should be worked out in coöperation with the heads of departments at the college.

GENERAL EXTENSION

One of the indications that the college has not so far reached out into the State is the fact that so far no general extension and correspondence courses have been developed. The institution has an obligation to promote this work so far as it possibly can, even though there is as yet no appropriation comparable in size to the money being spent for agricultural extension work. The advantages of this general extension work are obvious to the State and the institution. From the point of view of the college it is one of the many ways through which the college can gain a direct contact with the practical needs of the State. Especially is this true in the field of engineering and mechanic arts.

So far as possible all extension work should be co-ordinated. For this reason, although it may not be a logical arrangement, it is suggested that a vice-director for general extension work be appointed and that he and those who are associated with him for the development of this work be under the general supervision of the director of extension.

GENERAL ADMINISTRATION

For the general administration of the college it is recommended that there be formed an advisory council to the president to consider and advise on two types of problems, (1) general matters of policy relating to the activities and functions of the college; (2) routine administrative affairs on which the president wishes advice before taking action. Such a council will probably make unnecessary so frequent meetings of the faculty as at present. The advisory council should be composed of the dean of the college, the deans of the four major divisions and perhaps one other selected by the president from a list of three persons nominated by the general faculty.

The general faculty should be expanded so as to include all associate and assistant professors. Its chief function should be to legislate on matters relating to entrance requirements and methods of admission, requirements for degrees and certificates, curricula, questions of scholarship and attendance, prizes, honors, and student activities, etc.

THE DEAN OF THE COLLEGE

The chief duty of the dean of the college is to deal with student relations. Reports of all absences from class should be sent to his office as well as all reports concerning deficiencies in class standing. The dean should also advise with all officials of student organizations and supervise the matter of chapel attendance. If possible some attempt should be made to institute some vocational guidance work in conjunction with this office.

This arrangement involves the abolition of the office of dean of students and the transfer of all its functions to the office of the dean of the college. On the other hand, the evaluation of records presented by

entering students from high schools and other higher institutions would be transferred to the registrar's office to be performed by him or an examiner. Clearly this duty will shortly become too onerous for any one who wishes to continue his teaching functions on a full-time basis. At the same time it appears that all the duties now performed by the vice-president of the college could be transferred without loss and with some gain to the dean of the college. It is believed that all the functions of the vice-president can be performed more easily and expeditiously in the enlarged dean's office.

The duties of the dean of the college will require the full time of a very competent man. Furthermore he should have adequate clerical assistance to perform his duties satisfactorily.

THE REGISTRAR

The registrar's office should contain the official scholastic records of students, including entrance certificates, courses being pursued, grades, withdrawals from class, and graduation records. Also, the records of the meetings of the general faculty and reports of faculty committees should be on file in the registrar's office. Normally the registrar should be secretary of the general faculty.

The registrar should also evaluate all high school entrance certificates, referring all doubtful cases to a faculty committee, and working out a system of evaluating the work of students transferring from other colleges with the departments concerned in each such transfer. If the registrar himself does not have time for this work, there should be appointed an examiner who can devote a portion of his time to this work.

The present arrangement of having the registrar supervise the work of the superintendent of buildings and grounds appears to be entirely illogical, and it is assumed that with the appointment of a trained and experienced superintendent of buildings and grounds the continuation of this device will be unnecessary.

THE BUSINESS OFFICE

The business office should be charged with checking up all departments and officers of the college to see that they do not exceed without proper authorization the amounts of money set aside for their use in purchasing supplies and materials. For this purpose all requisitions for these supplies and materials should be countersigned by the business officer.

The business office is also the natural repository for all academic fees, dormitory rentals and charges for board which are paid by students at the college.

It is also suggested that it would be economy of time and money to employ a superintendent of buildings and grounds who has sufficient training and experience to supervise the heating and power plants, the

electric lighting system, and the construction of roads and sidewalks, but not the landscaping of the campus. An official with this training and experience should be able with sufficient assistance to supervise these various activities much more satisfactorily than is possible under the present loose arrangements. Of more importance, however, is the fact that certain heads of departments would thus be relieved of duties which prevent them from concentrating their attention on the problem of building up the engineering activities of the college and increasing the teaching efficiency of their departments which, it should be remembered, is the thing for which they are employed. When these facts are taken into consideration it is doubtful if the employment of a trained superintendent would involve any greater expense than at present. However, if it did, it would be money well spent.

THE LIBRARY

The library arrangements at present are among the weakest features of the college. The library room appears to be pleasant and the books well selected, but they are totally inadequate to meet the needs of the institution. The college is to be congratulated that a new library building is about to be erected. As soon as it is constructed arrangements should be made to increase the number of books very greatly in order that the library may be made of the greatest possible service to the faculty and students. It goes without saying that the library staff should be equal in training and number to the requirements of the enlarged library.

In this connection great care should be exercised to avoid the development of departmental libraries which require the purchase of duplicate copies of books and the service of special attendants. If the new library building is constructed near the center of the present campus it ought to make departmental libraries practically unnecessary.

THE HEALTH OF STUDENTS

The college is to be congratulated on the establishment of a hospital to take care of students who become ill. It is suggested, however, that much remains to be done in order to develop students physically. A gymnasium with adequate instruction in physical education is needed very greatly. At present the college is doing very little for the physical development of the student-body. Among other things, arrangements should be made to give all students a physical examination at least once each year. Those who are concerned with the care of the health of students are now laying great stress on preventive measures. As a means to this end there should be established a department of physical education which should develop athletic exercise for the entire student-body. As a means of co-ordinating the work of coaches of athletic teams with the larger work of physical education for all the student-

body, it has been found desirable at many institutions to make all coaches members of the department of physical education and of the general faculty.

DIVISIONS AND DEPARTMENTS

It is suggested that the several divisions be composed of departments as follows:

(1) Agriculture:

a. Animal husbandry including dairying and veterinary science.
b. Soils.
c. Farm crops.
d. Poultry science.
e. Horticulture.
f. Agricultural engineering.
g. Botany.
h. Zoology.
i. Vice-director of short courses.

(2) Engineering:

a. Civil engineering including highway engineering.
b. Electrical engineering.
c. Mechanical engineering including the machine shop, wood shop, the foundry, the vegetable oil mill.
d. Architectural engineering including mechanical drawing and descriptive geometry.
e. Textile engineering and manufactures including carding and spinning, weaving, and design and dyeing.
f. Vice-director of short courses.

(3) Division of General Science:

a. Chemistry including the fundamental courses and agricultural chemistry.
b. Physics including mechanics.
c. Mathematics.
d. English.
e. Modern foreign languages.

(4) Division of Social Sciences and Business Administration:

a. History and political science.
b. Economics, commerce, and business.
c. Rural economics and sociology.
d. Engineering and industrial administration.
e. Vocational education.

DUTIES OF THE DEANS

The duties of the deans of the several divisions under the scheme of organization which has been suggested would be in part to carry out certain administrative functions and in part to lead in the promotion of the work of their respective divisions in the college and throughout the State.

It is suggested, for example, that each dean's office be charged with the supervision of the registration of students who are pursuing cur-

ricula in the respective divisions. Such supervision will insure the fact that students follow their prescribed courses and take their prerequisite subjects.

The deans should preside over their respective faculties, which should include all ranks of the teaching force from instructors upward. All curricula and changes in curricula should be initiated in the divisional faculties before they are passed on to the general faculty for approval.

If it is deemed advisable an executive committee composed of the dean and the heads of departments may be formed to pass on routine matters and to consider matters of policy relating to the work of the school.

The deans should also arrange the teaching staff of the divisions so as to avoid duplication of instruction in the same subject. Many other interdepartmental matters can be co-ordinated through the dean's office. Deans and heads of departments should jointly recommend to the president and the board of trustees new appointments of faculty members in the several departments and all promotions and increases in salaries.

In so far as possible the dean of each division should devote his attention to the solution of the larger problems of his division and to devising ways and means of promoting the effectiveness of the instruction and of making the division more serviceable to the State at large. For this purpose the dean as well as the heads of the several departments in the divisions should consult leaders in agriculture, engineering, business and industry frequently in order that they may continually keep the instruction at the college abreast of the needs of the State.

ADJUSTMENTS IN THE SEVERAL DIVISIONS

1. Agriculture

If the proposed union of the extension work, the experiment station work, and the resident teaching under the complete administration of the college can be effected it is suggested that the dean of the division of agriculture be responsible for the agricultural experiment station and the extension service, but that the experiment station and the extension service be immediately in charge of directors who shall be responsible to the dean and through him to the president for the successful promotion and administration of their divisions. It is also suggested that conferences of the resident teachers, the experiment station men, and the extension staff in each department be held periodically under the chairmanship of the head of the resident teaching department. At these conferences matters relating to the development of the particular field of agricultural education, methods of coöperation and plans for promoting the work can be discussed and formulated.

In the accompanying proposed plan of organization the biological science departments are left in the agricultural school because it is assumed that it will be possible for them to develop their work as basic

sciences freely while at the same time benefiting from the association with the applied science departments, which in considerable part they serve.

2. Engineering

Adjustments in the engineering school should be made for the purpose of enabling the faculties, particularly the heads of departments, to devote more attention to organizing instruction effectively and to the consideration of ways and means for extending the activities and influence of the engineering school.

With this purpose in mind it is suggested that architectural engineering be made a separate department and that to this department for the present there be attached the work in mechanical drawing and descriptive geometry.

As has already been recommended, the responsibility for supervising the power plant, the heating plant, the purchase of coal, the electric wiring system, and the construction of water and heating lines should be transferred to a superintendent of buildings and grounds who has sufficient training and experience to carry on all these activities successfully.

It is also suggested in the interest of efficiency that there be appointed a superintendent of shops, to have direct charge, under the supervision of the department of mechanical engineering, of the forge work, the foundry, the wood shop and the machine shop. Also as soon as the vegetable oil work is begun there should be a superintendent, under the supervision of the same department, who is capable of directing the work.

In order to prevent unnecessary and wasteful duplication of instruction in certain engineering subjects in more than one department, it is suggested that arrangements be made to transfer instruction in strength of materials and hydraulics to the civil engineering department; mechanical drawing and descriptive geometry to the new department of architectural engineering; and mechanics to the physics department.

Finally, the engineering experiment station, which was organized a short time ago, should be given a definite appropriation. North Carolina has recently become a great industrial State. Its future progress along these lines depends not only on the organization of industry under trained men, but also on the new and more economical processes of production and distribution which are introduced from time to time. In order to accomplish these purposes most satisfactorily it is necessary that the engineering division of the college address itself continually to a variety of research problems the solution of which is of consequence to the State. A number of experiments in road-building materials, for example, and other research problems which the officials of the State government need to have solved from time to time could be done economically and acceptably under the supervision of the engineering

experiment station. This is another very important channel through which the college can more effectively serve the State and extend and deepen its influence with the people.

OTHER OBSERVATIONS

The number of credit and class hours required of students at the college is entirely too large. There is every indication that courses have been inserted in the curricula to meet the demands of particular departments and with too little thought of a well-balanced program. Such a condition is the natural result of lack of direction and co-ordination from some responsible head within the division or school. It is believed that the appointment of responsible persons as deans of the several schools will afford a means of revising the several curricula with the object of reducing the number of semester hours required for graduation. Such a change will enable the institution to conform more closely to the present practice of other technological schools and give the students more of an opportunity to use the library and prepare for their work.

The teaching hours of the faculty, particularly the heads of departments, are in a number of instances too large. When it is recalled that a number of these department heads have also been carrying considerable administrative duties not related to the work of their departments, wholly inadequate time remains for developing the work of the department and the school. Reduction in the number of teaching hours for heads of departments is one of several suggestions which have been made in order to give more opportunity to consider questions relating to the development of the department and the school.

It is not improbable that the teaching hours for all ranks of the faculty could be somewhat reduced if a thorough examination of the number of small classes were made. The registrar reports 46 classes enrolling from one to five students; 60 classes enrolling six to ten students; 161 enrolling eleven to twenty students; 105 classes enrolling twenty-one to thirty students; 9 classes with thirty-one to forty students; 4 classes enrolling forty-one to fifty students; and one class enrolling over sixty students. The proportion of small classes appears to be high, and it seems probable that by the exercise of greater care the number could be considerably reduced, with a consequent reduction in the number of teaching hours.

The salaries of the several faculty grades deserve serious consideration. Information on hand at the Bureau of Education shows that the salaries of professors and associate professors at the college are no higher than the median average salaries for those grades at other State universities and colleges, including a large number of small institutions. The salaries of assistant professors and instructors are $500 and $200 below, respectively. Of even greater importance, however, is the fact that the maximum salaries for all the grades do not compare favor-

ably with those at other State institutions. For example, more than one-half of the State universities and colleges have higher maximum salaries for full professors; 46 out of 59 have higher maximum salaries for associate professors; 62 out of 69 have higher maximum salaries for assistant professors and 62 out of 67 have higher maximum salaries for instructors.

This suggestion presupposes the likelihood that not all salaries for full professors would be the same, as is practically true at present. As the institution grows it will be compelled to recognize differences in the ability and usefulness of faculty members. The same observation applies to the deans of the several schools. There is no reason to assume that the ability and usefulness of all of the deans will be equal. For this reason it is highly desirable that the president and the board of trustees should feel free to employ outstanding men in certain fields, paying a sufficient salary to retain them, although the same thing may not prove possible or even desirable in other fields. The conclusion of the whole matter is that in outlining plans to promote the work of the college vigorously, men of leadership are essential, and they cannot be secured in colleges any more than other lines of work except for adequate compensation. It is believed that with the present rate of salaries it will be impossible to attract and retain men of the calibre that ought to be employed by the college. It is suggested, therefore, that if possible the maximum salaries for the several faculty grades be increased. Such an action would not require a general increase in salaries. In fact considerable care should be exercised in promoting faculty members to the higher salaries, and the administration of the college should not hesitate to employ outside men if thereby the efficiency of the institution can be increased. Inbreeding of the faculty is a danger against which every higher institution has to be on its guard continually.

In this connection it seems pertinent to point out that just as the quality and ability of the executives determine in large part the degree to which the college will lay hold on the State, so does the quality of the rank and file of the faculty determine in large part the degree to which the college fulfills its mission in teaching students successfully. It is very desirable, therefore, that the quality of the teaching personnel should always be maintained on a high level. To the casual educational observer it appears that the faculty of the college is composed somewhat too largely of instructors, many of whom have themselves not been out of college long. Particularly does it seem as if a somewhat larger proportion of the faculty should be made up of persons who have had a training as extensive and intensive as that required for the Ph.D. degree.

Finally, it should be realized that a college education does not consist entirely in preparation for some definite vocational or professional pursuit. Students need to know that they have certain definite citizenship

functions to perform and that they should have the ability and inclination to appreciate esthetic and cultural values which, after all, are the climax of a well-rounded education. The demand for intelligent leaders of public opinion to help solve ever-increasing complex, economic and social problems is just as definite and as important as the demand for specialized and technical training. The comfort and happiness of the whole people depend not only on their increasing ability to satisfy their material wants but upon their ability to enjoy good music, literature and art and other uplifting influences. Therefore, no matter how restricted nor how specialized may be the fields of educational service which an institution performs, there is an equal obligation to train students for citizenship and for a fuller life.

The college is to be congratulated that it has a course in citizenship training. The ideal of this course should be to combine in a single unit all such training in the general social sciences as is taken by students in the several curricula. It would appear that this course should be a three-hour course for at least a year. Similar unified provision should be made for the work of cultural nature primarily. However, it should be recalled that much important work of this nature can also be done outside the classroom, and the recent decision of the trustees to set aside a small sum of money for lectures and concerts is to be commended highly.

CONCLUSIONS

The present report has been written around a few major considerations, which can be summarized as follows:

(1) The college should exert every possible effort to unite the extension work in agriculture and the agricultural experiment station under its sole administration. Every possible argument of State economy as well as efficiency in service leads to this conclusion. Until this action is consummated it will be extremely difficult, if not impossible, for the college to extend its influence throughout the State or to gain that grip on the affections of the people which it deserves.

(2) The college should establish an administrative system which will insure careful and speedy attention to administrative details and at the same time afford the president, the deans, and the heads of departments more time for the consideration of problems and policies relating to the development of the institution. The college is going to make its appeal to the people of the State or fail to make it by the quality of educational service it renders and the degree to which it seems to be meeting the demands of the State. For this purpose educational leadership at the college is not only desirable, it is absolutely essential to the full development of the institution. So far as possible, therefore, the college should place strong men in the executive positions and, after doing so, give them ample opportunity to develop the work of the institution.

(3) The college should select several major objectives in addition to agriculture and engineering which it will promote with something like the same zeal that it promotes these two fields. So long as the institution is known for only one or two major activities it will suffer a certain lack of popular appreciation. If possible it should develop a varied clientele which touches the largest possible number of activities—always keeping in mind, of course, the fields of higher education which properly belong to the university. It is believed that the field of engineering and agricultural administration is such a field. Textile engineering and manufactures is another. Perhaps the vegetable oil mill, ceramics, and furniture making are lines of work that may ultimately lead into extensive industrial courses. It would seem as if the whole field of chemistry could be more extensively developed. The beginning which has been made in agricultural and industrial journalism could probably be developed more extensively. The teacher-training work should be emphasized as far as possible in order that closer contact may be cultivated with the secondary schools. The summer school has performed an excellent service and should be developed vigorously.

In conclusion it should be said that if this report emphasizes the changes and alterations in the administration of the college which seem desirable, and omits practically all reference to the many superior features that have been developed in its relatively short history, the statement would be correct and it is more or less inherent in the nature of such a study. Certain suggestions and recommendations have been made for the improvement of the administration at the college, but with no thought of disparaging the excellent service which the college has rendered to the people of the State. It is believed that with adequate support and with proper administrative organization and foresight it can go on to new victories greater in extent than has hitherto seemed possible.

The possibility of accomplishing these things, however, does not lie primarily in the nature of the administrative organization at the college. It is only the machinery through which it will be accomplished. To the machinery of a college organization must be added power and leadership in executives and faculty.

For this reason I trust it will be assumed that the reorganization of the administrative system at the college will not be regarded as an end in itself but only as the vehicle through which well-trained, experienced leaders as executives and teachers may more and more adequately and satisfactorily fulfill the obligations of the college to the citizens of the State.

SUMMARY OF RECOMMENDATIONS

1. That at the earliest possible time the board of trustees undertake such negotiations and adopt such measures as may be necessary to secure the complete transfer of all control over the activities of the agricultural experiment station and the agricultural extension service to the board of trustees at the college, and that thereafter these two services be administered through the college in complete coöperation with the work of resident teaching. The needed changes, both in law and custom, should of course be worked out in such a way as to invite the least possible friction and opposition from other agricultural agencies of the State and through plans which will, if possible, invite their coöperation and support.

2. That the resident teaching work of the college be organized into four main divisions: Agriculture, engineering, general sciences, and social sciences and business administration, with a dean in direct charge of each division.

3. That the division of agriculture include the departments of (1) animal husbandry including dairying and veterinary science; (2) soils; (3) farm crops; (4) poultry science; (5) horticulture including vegetable gardening; (6) botany; (7) zoology including entomology; (8) agricultural engineering; and (9) a vice-director of short courses in agriculture.

That the division of engineering include the departments of (1) civil engineering including highway engineering; (2) mechanical engineering including a superintendent in charge of the forge room, the foundry, the wood shop and the machine shop, and a superintendent of the proposed vegetable oil mill; (3) electrical engineering; (4) architectural engineering including mechanical drawing and descriptive geometry; (5) textile engineering and manufacturing; (6) a vice-director of short courses in mechanic arts.

That the division of general sciences include the departments of (1) chemistry; (2) physics including mechanics; (3) mathematics; (4) English; (5) modern languages; (6) physical education.

That the division of social sciences and business administration include the departments of (1) history and political science; (2) economics and business administration; (3) rural economics and sociology; (4) engineering administration; (5) vocational education.

4. That there be formed an advisory council to the president consisting of seven persons including the president, the dean of the college, the deans of the four major divisions and one other selected from a list of three persons nominated by the general faculty. This council should consider and advise on such questions of policy at the college and such routine affairs as are referred to it by the president.

5. That the general faculty be expanded so as to include all persons of the rank of assistant professor or above.

6. That the office of dean of students be abolished and that his duties be performed by the dean of the college.

7. That the registrar's office be responsible for the evaluation of all entrance certificates, the keeping of all student records and the minutes of the general faculty, and that the registrar's duties as overseer of the superintendent of buildings and grounds be terminated.

8. That there be employed a superintendent of buildings and grounds who has sufficient training and experience to supervise the power plant, the electric lighting system, the heating plant, and the construction of roads and sidewalks.

9. That the superintendent of buildings and grounds, the dining halls, and the dormitories be placed under the general supervision of the business office.

10. That the college attempt a larger program of physical education including a physical examination of every student at least once a year.

11. That the library be built up immediately, with as little duplication as possible in departmental libraries.

12. That the college appoint vice-directors of short courses in agriculture and mechanic arts who have the ability, opportunity, and inclination to promote this field of work vigorously.

13. That the college appoint a vice-director of general extension and endeavor to promote this field of work as vigorously as circumstances will permit.

14. That the engineering experiment station be given a definite appropriation in order that it may make a beginning along these lines.

15. That the number of semester hours of credit required of students for graduation be reduced.

16. That the number of teaching hours for members of the faculty, especially those who are required to perform administrative work, be reduced.

17. That the college increase its scale of maximum salaries for the several grades of the faculty, with due care to the promotion of men from within the institution and the selection of others from outside.

18. That the situation concerning small classes at the college be examined carefully with a view to reducing the total number of these classes so far as practicable and possible.

19. That the president and trustees seek with great care to select leading and vigorous men for the several deanships which have been suggested and for all other executive and administrative positions.

20. That the quality of the teaching force be maintained upon a high level by the appointment of a considerable proportion of persons with teaching experience and with a training equivalent to that presupposed by the Ph.D. degree.

Form No. A-368, Rev. 8/95