partment, new X-ray laboratory, pathological rooms, etc. Medical control of the hospital is entirely in the hands of the faculty of the School of Medicine of the University of Alabama.

AT a recent meeting of the New Mexico Board of Medical Examiners a rule was adopted that hereafter diplomas granted by colleges listed in class C by the Council on Medical Education of the American Medical Association will not be recognized by that board.

UNDER the law of Missouri, the State University receives an inheritance tax of five per cent. on all legacies, except those to direct heirs. The university has brought suit to recover this percentage on the part of Joseph Pullitzer's estate represented by the *St. Louis Despatch* and bequeathed to Columbia University and other institutions.

ELMER A. HOLBROOK, professor of mining engineering in the Nova Scotia Technical College, Halifax, Nova Scotia, has been appointed assistant professor of mining engineering at the University of Illinois, to have charge of the recently equipped coal-washing and ore-dressing laboratory and the course in mine design.

PROFESSOR LEWIS E. YOUNG, who for the past six years has been director of the Missouri School of Mines, will in September take up graduate work in the department of economics at the University of Illinois, and will also give part of his time to teaching in the department of mining engineering.

DR. W. C. MCC. LEWIS, having been appointed to the chair of physical chemistry in the University of Liverpool, has resigned his office in connection with the department of chemistry at University College, London.

DR. OTTO WILCKENS, associate professor of geology at Jena, has been called to Strassburg, to succeed Professor Holzapfel.

DISCUSSION AND CORRESPONDENCE

AGRICULTURAL EXTENSION

IN the June, 1912, number of the *Experiment Station Record* (Vol. XXVI., No. 8) is an editorial dealing with several methods for disseminating agricultural information. An exceedingly interesting part of this editorial is the review of a paper on "Organization and Administration of Extension Teaching in Agriculture" by the director of the federal Office of Experiment Stations.

The writer need hardly assume to write any critical review of statements made by Director True. In view, however, of conditions which exist in various places throughout the country, it may be proper to say that certain statements made by Director True ought not only to be read, but also reread, because they are fundamental. Properly adopted and made part of our educational systems, they will make for progress and avoid not only confusion, but ofttimes unnecessary strife. These fundamental principles for agricultural extension in the several states which seem to be stated in the editorial referred to, are as follows:

1. Considered as an essential feature of the American system of agricultural education, it was held to be primarily the business of the state to create and maintain the institutions through which extension teaching in agriculture shall be conducted. Since it is an educational enterprise, it will naturally be carried on by educational institutions rather than by administrative departments. The nation and state departments of agriculture may both properly aid in this work, but the chief burden of responsibility for it in the several states will naturally fall on the agricultural colleges.

2. Since it is highly important that the information on any subject given to the students and public should represent the views of the institution as a whole, all the experimenters, teachers and extension workers should be grouped by departments representing the specialties in which they are working. Thus the department of agronomy should embrace all the agronomists employed by the college, whether they are engaged in experimenting, teaching or extension work.

These two basic principles, namely, that *it is a function of the state to educate the people of the state* and that *given lines of work in any organization must be administered as a unit,* ought to be clear enough. However, a somewhat limited observation would lead one

to believe that one or both of them are forgotten in some instances and that the forgetting of them leads to little short of disaster.

The writer is interested in the problem of agricultural extension, not in an executive, but in a departmental way. It is this interest which every department, and every member of every department, must take in the ultimate success of the projects which the department represents, that may serve as an excuse, if any be needed, for the present article.

The writer knows, or thinks he knows, from observation, that the practical administration of the agricultural extension idea may be, on the one hand, exceedingly helpful, or, on the other, quite disastrous to any department. In order that harmony of administration shall prevail, "the department of agronomy should embrace all the agronomists employed by the college, whether they are engaged in experimenting, teaching or extension work." The quotation may of course be extended to include all departments of any agricultural college. Every department of every agricultural college should have a head or chief, and he should be responsible for all the work and all the time of all people in the college-experiment-station-extension department who are engaged in the line of work which he represents.

Such a statement may sound dictatorial. It is not. It is only good administration.

So great a movement upon the part of the collective agricultural colleges as the one necessitated by the present demand for public-service or "extension" is bound to carry them back, or perhaps forward, to fundamentals. What is the logic of college "departments"? Answer, college departments logically grow out of natural lines of cleavage between the several portions of work before the college organization. Such lines of cleavage do not naturally intersect, and if they are permitted or forced to do so, the result is confusion. The lines of distinction between the natural departments of agricultural work are clear enough. Animal husbandry, agronomy, horticulture and so on can hardly trespass upon the work of one another, because each division of work grows out of fundamental differences. If the natural divisions of labor, as a result of which departments are created, are kept very clearly in mind by organizations, in "extending" their work, the problem appears not very complex.

Such a statement naturally leads to the inference that the several departments of the college are sovereign within themselves, except for the general executive authority which emanates from the office of the dean or president, and as a corollary it would be expected that all representatives of a given line of work should at all times report directly to the chief of the department and not, for instance, directly to the director of extension. That is also exactly so. "No man can serve two masters: for either he will hate the one, and love the other, or else he will hold to the one and despise the other."

In what relation, then, is agricultural extension in the several agricultural colleges to be administered? In attempting to answer the question, the writer makes bold, very bold, perhaps, to insert the following plan of an ideal administrative arrangement of the departments of an agricultural-college-experiment-station organization.

It may be apparent from this ideal arrangement that the office of the dean and director is the central administrative authority of the entire college. In case of the smaller colleges where the dean assumes the title of president, there is no essential difference. The dean and director not only administers the institution, but he reflects the spirit of the institution. He represents the state in which his college is located in the specialty which his college represents. He is big enough and broad enough and sympathetic enough and democratic enough to provide ways through which all the departments of his organization may independently each attain its highest efficiency. The efficiency of the executive office is not only measured by the efficiency of the several departments which report to it, but also by the ability of the dean and director to transform such efficiency and make it available to the state.

Obviously the departments of any agricultural-college-experiment-station organization are divided according to the work to be specialized in by each department. Obviously also the number of departments will vary according to the financial resources of the institution and the degree of specialization. The number of departments will usually increase as the institution grows older and stronger.

The work of each department shall be directed by the head of that department and he shall accomplish, through the aid of assistants of various ranks, all the work within the field of the department. Assistants in any department may be of any desired rank, and it may well be understood that they are subordinate to the head of the department only as a matter of administrative convenience.

Up to recent times, two distinct lines of work have been recognized as coming within the function of agricultural colleges, namely, research and teaching. Moreover, up to recent times, the teaching in the agricultural colleges has been confined mainly to ordinary instruction in college classes. Of late years it is becoming more and more evident that this is not sufficient. It is not necessary here to review the various means by which the teaching work of the colleges is being and must be carried beyond the classrooms proper.

It is necessary to emphasize that wherever this extension teaching is carried, it must still be teaching, and that it differs only somewhat in place and method from any other teaching. Whether it is classroom teaching or extension teaching is absolutely the same so far as administration is concerned. The same departments which do one kind of teaching must finish their duty. The same departments which do research work and carry the results into the classroom by the process of teaching, must finish their duty and carry the results along with other accumulated data directly to the state at large. Whether a department shall disseminate information by having students come to its classrooms or whether it shall extend itself by going to the four corners of the state, does not change the department, except perhaps in number of assistants and specialists who will be necessary to accomplish the increased work.

If all this be true, what is the logical relation of the extension department and what is the need therefor?

The later-day call for extension "departments" in agricultural colleges has grown out of the insistent demand that the agricultural colleges shall actually serve the state. Extension departments are, therefore, evidences of our growing democracy, crude and ungainly as that may often seem.

Logically, the extension department of any college includes all movements, inaugurated by the dean and director, to extend the work of his organization into the state. The dean and director may be his own extension man, that is, he may personally direct the work of disseminating information from his institution. If due to lack of time or inclination, he extends the work of his institution through the medium of a superintendent of extension, the case is not altered. The superintendent or secretary of extension, if there be one, must logically function as an assistant to the dean and director.

The authority of the superintendent of extension is whatever authority is given him by the dean of the college, whose assistant he is. He should have no power to usurp the authority of any of the heads of departments, nor does he have control over any of the work or any of the time of assistants in any of the departments, for if he has such authority, he will be a general nuisance around all departments, which means around the entire institution and the entire state. If he is strong enough in personality, he will disrupt the entire organization.

The logical work of the superintendent of extension is to assist the dean in collecting and disseminating agricultural information. His usefulness in the institution will be measured by his ability to do this to the fullest extent harmoniously. In detail, his work would naturally include such matters as the arrangement of meetings throughout his state, and to secure speakers from the college to

attend these meetings. In order to arrange for these speakers, he must of necessity confer with the heads of the several departments and have them delegate one or more of their assistants to do such work at specified times. It will be expected that the heads of departments will delegate such speakers unless it is absolutely impossible to do so on account of lack of help. If any given department is constantly unable to furnish teachers for extension work, either a lack of ability or a lack of desire upon the part of the department is indicated and the department should either have more assistance to strengthen it or it should be otherwise helped by executive action. Thus the superintendent of extension shall have a very strong moral influence delegated to him by the dean and director in persuading departments to do every reasonable amount of extension work, but he should not have any absolute authority to go into a department and disorganize it.

By this same token, the superintendent of extension should be an arm of the executive office and not a department head.

There should be no department of college extension in the same sense as there are other departments based upon natural division of labor. The function of extension is to extend the work of collective departments and not in itself to be a department. If it is allowed to be a department, it can only do so by either duplicating a part of the essential work of other departments or by usurping the same, and again it becomes a private and public nuisance.

There are colleges of agriculture in the United States, which if named would at once be recognized as in many respects the strongest in all the country in which the superintendent of college extension is virtually an assistant to the dean and not head of a coordinate department. Two of these greatest agricultural colleges which the writer has in mind have offices of college extension that are seldom talked about, but the colleges themselves are talked about and the work they do in their respective states is also talked about. The writer can think of other colleges where there are separate departments of college extension. The college-extension departments are very much talked about. The colleges they are supposed to represent are not so much talked about.

As time goes on the personnel of departments and their assistants and executives and all understand that they are servants of democracy. When that time, which is rapidly approaching, is completely here, no college or experiment station will rest content without putting its useful and usable information as rapidly as possible into the hands and hearts and heads of the people where it belongs. This latter work may be accomplished in the doing by an office of agricultural extension, but said office will not function like an extraneous department pasted on over other departments like a porous plaster.

A. N. Hume

South Dakota State College,
Brookings, S. Dak.

A NEW ATTACHMENT FOR THE HARVARD KYMOGRAPHION

Certain methods have been used for studying the effect of fatigue on the muscle curve. Among these there is the old method of recording a make or break contraction; this method consists of removing the writing point from the drum and stimulating the muscle a certain number of times, say nine. The drum is revolved a few millimeters with the hand, then the writing point is replaced against the drum. This is repeated regularly at every tenth contraction until the muscle ceases to respond. This gives a series of straight lines on the drum formed by every tenth contraction of the muscle. The height of these lines gradually decreases as fatigue comes on until the zero point is reached; but it does not tell of the important changes occurring in the latent period and the period of relaxation.

This has been overcome on those particular types of European and American kymographions which have the supporting frame for the drum external. On these types of machines an insulated copper wire may be led