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THE FUNCTION OF THE STATE UNIVERSITY.[1]

THE UNIVERSITY OF ILLINOIS owes its foundation to the initiative of the federal government of the United States.

The celebrated Morrill Land Grant Act of July 2, 1862, provided that each state in the union should be granted thirty thousand acres of land for each senator and representative to which the state was entitled in the federal congress, for the establishment and support 'of at least one college, whose leading object shall be (without excluding other scientific and classical studies, and including military tactics) to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.'

This has turned out to be one of the most magnificent endowments of higher education ever made by any government, church or individual, whether we have regard to its immediate effects in leading to the establishment of the particular institutions contemplated in the act, or to its remoter effects in further increasing and stimulating state benevolence for this same general purpose.

As the result of the said grant, at least one institution corresponding to the above description has been established in each state and territory in the union. There

[1] Inaugural address of Dr. Edmund Janes James on the occasion of his installation as president of the University of Illinois, October 18, 1905.

are now more than forty-nine in all! The states have in nearly every instance contributed to the further endowment of these colleges in the form of permanent funds or what is practically the same thing, in the form of permanent annual appropriations, exceeding, and in some cases far exceeding, the amount given by the federal government itself.

In some instances the new college was incorporated in, or annexed to, some existing institution. In others it was made an entirely independent institution limited to instruction in agriculture and the mechanic arts. In still others it became the nucleus of a great state university, with all the departments properly belonging to an institution which may justly lay claim to that time-honored name.

This was the case in Illinois. The proceeds of the sale of this original land grant constitute an endowment fund providing about thirty-two thousand dollars a year for the support of the institution.

In 1887 the federal government passed an act known as the Hatch Act, providing an appropriation of fifteen thousand dollars a year, to each state in the union, for the establishment and support of an agricultural experiment station. This, in the state of Illinois, was made a department of the state university.

In 1890, by what is known as the second Morrill Act, the federal government appropriated an additional sum of fifteen thousand dollars a year, to be increased by one thousand dollars annually until it reached the sum of twenty-five thousand dollars a year, for the further endowment of colleges of agriculture and mechanic arts, founded on the act of 1862. This sum, in Illinois, was naturally also turned over to the state university, so that, by these various federal acts, the University of Illinois now receives, either directly or indirectly from the federal government, about seventy-three thousand dollars a year, to be applied in the maintenance of an agricultural experiment station, and the colleges of agriculture and mechanic arts.

The state of Illinois has added largely to this sum of seventy-three thousand dollars for the support of these two enterprises. The last legislature, for example, appropriated four hundred thousand dollars per annum for the support of these departments, or more than five times as much as the federal government. In addition it also appropriated considerable sums for the support of other departments which, although not mentioned specifically in the Land Grant Act of 1862, were contemplated by the words 'not excluding other scientific and classical subjects.'

In other words, the state of Illinois has not only applied conscientiously to the purposes of the federal act all the funds which the congress has provided, but it has actually appropriated five times as much for these same purposes as the federal government itself. In addition it has provided for the other departments necessary to transform the original college of agriculture and the mechanic arts into a full-fledged university of the modern type.

The comparatively small sum thus appropriated by the federal government has led in the sequel to the expenditure of ten times as much for higher education by the state of Illinois. The other states have followed in the same general path, so that it is doubtful whether a similar expenditure of funds to that made by the federal government on this occasion ever led to proportionately greater returns for higher education, in the history of any time or country.

The University of Illinois has become the largest of the institutions which owe their origin to this federal grant. Opened for

work on March 2, 1868, with fewer than one hundred students, its growth for the first twenty years was very slow, as the state at first declined to give very largely in addition to the federal grant. Indeed, it seemed inclined for a time to limit the institution strictly to the work of a college for agriculture and mechanic arts, in the narrowest sense, as was indicated by the name first selected for it, namely, 'Illinois Industrial University,' and by the refusal of the legislature to do more than apply in good faith the proceeds of the federal grant to its support.

But about the year 1887 a new spirit became manifest. The Hatch Act, furnishing additional funds for the support of scientific work in the domain of agriculture, seems to have been potent in stimulating this new attitude. As a result of the activity of the alumni and of other friends of higher education in the state, the legislature was prevailed upon to change the name to the 'University of Illinois.'

What is in a name? Sometimes much, and so it was here. Giving this name—the University of Illinois—to the institution, if not at that time an indication of a conscious change of purpose on the part of the people of this state, powerfully helped, at any rate, in working out this change of purpose and bringing it to the public consciousness.

It did not, of course, immediately produce large results, and even so late as 1890 the faculty of the school numbered only thirty-five, and the student body, four hundred and eighteen. Since that time, partly as a result of the impetus given by the second Morrill Act of 1890; partly as a result of the changed attitude on the part of the state toward the institution, evidenced, even though unconsciously, in this change of name; still more, perhaps, as a result of that marvelous increase of popular interest in higher education manifested throughout the country in the last fifteen years; the legislature of Illinois has become more and more liberal in its appropriations, enabling the institution to approximate with an ever-increasing rapidity toward the ideal expressed in its name, 'The University of the State of Illinois.'

The increase in the attendance and in the instructing body has been remarkable. The faculty has grown to number nearly four hundred and the total number of matriculants in all departments for the present year will probably reach four thousand.

This rapid increase has been partly the result of adding new colleges—in some cases existing colleges with an honorable history and a considerable attendance, as in the case of the colleges of medicine and dentistry—and partly the result of increased attendance in the older departments.

To the original colleges of agriculture and mechanic arts, contemplated in the first act (including engineering and architecture), have been added the colleges of liberal arts, of science, of law, of medicine and dentistry, and the schools of music, of library science, of pharmacy and of education.

In the college of liberal arts and the graduate school connected with it, are included the ordinary subjects of instruction embraced in the modern university so far as they are not included in the other schools and colleges mentioned, except those belonging to a theological school.

Associated with the university are, besides the agricultural experiment station already mentioned, the engineering experiment station (the first of the kind in the country); the state geological survey; the state laboratory of natural history; the

state entomologist's office and the state water survey.

Such is the university now. What is to be its future? At the risk of incurring the fate of a prophet I will undertake to forecast the future of this institution to a limited extent; and I do it with more confidence because the history of other state institutions has already indicated some of the things in store for us—institutions in whose footsteps we are sure to follow, and if at first *longo intervallo* yet with increasing determination to press them ever harder in all those things which pertain to a true university.

I take it first of all, then, that this institution is to be and to become in an ever truer sense, a university. That, I presume, has been settled once for all by the people of this state. It was settled, even though unconsciously, when the word 'industrial' was stricken out of the title, leaving it simply 'The University of Illinois'—by no means the first time that the subtraction of a word from an expression has indicated an addition to the meaning.

It has been settled anew at each successive session of the legislature, as by one increase after another in the appropriations the representatives of the people in the general assembly have set the seal of their approval on the large and wise policy of the trustees.

It has been settled by the ever-increasing purpose of the great mass of the people of this state, the plain people of the farm and the mill, of the country, the village and the city, to build here a monument which will be to them and their children an honor and a glory forever, an evidence which all the world can see and understand, of their corporate appreciation of the things of the spirit.

What then is a university—that which this institution is to be and become?

Men of different nations and different times would give different answers to this question. Nay, men of the same nation and of the same time would give different answers. In fact so different would be the answer given by different men in the United States at the present time to this question, that one might well wonder whether there is any common agreement as to what a university really is.

I must, therefore, answer this question for myself, for this time, and this place, and this institution without, however, reflecting in any way upon what other institutions bearing this name are or may become. I believe that the system of institutions which shall satisfy the educational demands of a nation like this must embrace higher institutions—universities if you will—of many different types. In sketching out the future of the University of Illinois, therefore, I do so with due regard to the fact that we have in this state important and valuable institutions of an entirely different type whose work the University of Illinois will thus supplement and complete.

I should define a university briefly as that institution of the community which affords the ultimate institutional training of the youth of the country for all the various callings for which an extensive scientific training, based upon adequate liberal preparation, is valuable and necessary. You will note the elements in this definition. By virtue of the function thus assigned to it, it is in a certain sense the highest educational institution of the community. It is the institution which furnishes a special, professional, technical training for some particular calling. This special, technical, professional training must, however, be scientific in character, and must be based upon adequate preliminary preparation of a liberal sort.

By this requirement of a liberal preparatory training, the university is differentiated from the technical school or trade school of secondary grade. By the scientific character of its training, it is differentiated from a mere preparatory 'cram' school for public examinations: such as were so many of our private professional schools down to a recent date.

There are certain things, then, which must mark this institution in order to make it a true university. The most striking peculiarity is the scientific character of the training which it affords. A consideration of this feature—for to my mind it is the fundamental and distinguishing quality of the university—may properly delay us for a moment. There are many ways in which a man may be prepared for a profession. He may have no school training whatever of a special or professional kind. Having acquired a knowledge of the elements of learning, he may be thrust directly into the practise of a profession in order to learn 'by doing.' This has been characteristic of most of our professional work in this country down to within a recent date. But even when schools have been organized to afford such training, they may still be of very different kinds. Thus they may be merely institutions to purvey what is already known in the profession, their purpose being to fill the minds of their pupils with knowledge of what at present is known about the subject in hand; perhaps to enable them to pass a state examination which may be prescribed in this particular field, or to pass a university examination set for the purpose of testing one's knowledge rather than one's power.

A school may, on the other hand, be organized on the theory that the best way to prepare a man for the practical duties of a profession, so far as it can be done in school, is to train him to be an independent investigator in the domain appropriate to the profession. Thus, from this point of view, the best way to prepare a man for a professorship in mathematics would be to train him in mathematics in such a way and to such a point that he might have a power of independent judgment in the domain of mathematical problems; that in an independent way he might discover the possible mathematical problems for himself and be equipped to handle them one after the other as he might have occasion or opportunity to take them up. In the same way the best training for a lawyer or a judge would be such a training in the science of the law as would enable him to have a power of independent judgment on any legal question he might meet, such as would qualify him to take up with entire freedom and with a feeling of ability the investigation of any topic which might come before him.

It is this latter idea which underlies the German university and the German professional school. According to the idea of the Germans the way to prepare a man to become a professional chemist is not to load him down with all the knowledge of chemistry which the world has thus far accumulated, though such an acquisition under certain circumstances may be valuable, but to train him in the field of chemistry in such a way as to make him an independent investigator—one who will be qualified to meet any chemical problem coming up in the course of chemical work. In the same way, to prepare a man to be a professor of history is not, according to the German idea, to fill him up with the knowledge of all historical facts, for such facts have already passed, in their multitude and magnitude, beyond the power of any man to grasp, even that of a von Ranke; but to give to the man a historic

sense, or at least to awaken it in him (for if he has it not it would be difficult to create it entirely anew), to develop his critical spirit, to qualify him to take up the investigation of any particular historic problem in such a way that when he has finished his investigation the last word will have been said, so far as the existing material will permit.

In addition to this, the purpose of the professional school should be not merely to qualify the student to do this kind of research, but to inspire him with an ambition actually to do this kind of work to the extent of his ability, whatever the position to which he should be called.

I do not know to what extent this peculiarity in the conception of a true professional school may explain the leadership which Germany enjoys to-day in the world of science and scholarship, that is to what extent this peculiarity in their educational system has produced this thirst for scholarship and learning, or to what extent their natural thirst for scholarship and learning has worked out this peculiar device for stimulating such a spirit. Whichever may be true, I think we must allow that in this particular quality the German university surpasses those of the rest of the world.

They carry this thought much further in Germany than in any other country. No man is allowed to teach, even in a secondary school of the first grade, who has not come under the influence of the theory and practise of this sort of a professional school. And while the German universities, judged from an American point of view, have many defects, this is certainly one of their strongest points, and one which, if we can in any way secure for ourselves, in our own institutions, would be a great advantage to us.

It goes without the saying that in such an institution as we are outlining the faculty will consist of men and women who will have developed this quality of scholarship, this idea of learning, this notion of productive work in the field of scientific investigation and research. It can not be anything else and accomplish the ends we have in view. Now, of course, there is a long road to travel between our present situation in this respect and that time when, judged from this point of view, we shall be a true university. I say a long road, but it will be covered, I fully believe, in a comparatively short time; for the idea of this advance has already permeated this body of instructors, has touched with its dynamic force every aspiring soul in the group and will in the long run leave no individual untouched, and will leave no person unaspiring.

What this spirit, if it could become general, would mean for our scientific advance as a nation, what it would mean for our industrial improvement, surpasses almost the power of the human mind to conceive. Suppose every one of our high school teachers in this country had had a university training in the sense in which I am using the term, so that when he goes into a community and begins his work of instruction there also goes into that community a new power, a new force, being itself first of all productive, and then aiming to select from that community the young minds which may have it in them to add to the power and resources, to the wealth, moral, intellectual and material, of their communities, and kindle in them the sacred flame of aspiration, as only the genuine fire of scientific enthusiasm can kindle it. Suppose every student who goes forth from this chemical laboratory should carry with him the power and the determination to add something to our knowledge of chemistry, what an addition to the industrial resources of this country! It would mean

more than the annexation of many fertile islands beyond the sea, and would cost far less.

In brief, then, this institution must become, in all departments of professional life, a great center of scientific research and investigation, and must become so, if for no other reason, because the professional training itself can not be of the highest type unless it be given by men who are qualified for, and eager of, scientific effort.

This university will include within itself not merely the old professions—law, medicine, teaching—but it will include scientific preparation for any department of our community life, for the successful prosecution of which an extensive scientific training of this kind is desirable or necessary. We shall add, therefore, from time to time schools or colleges which will take care of these new professions as they may appear. We have already begun with the profession of engineering in all its various forms—mechanical, civil, electrical, sanitary, chemical, etc., the profession of architecture and the profession of farming. The next to be entered upon in a large and satisfactory way is the profession of business. Some of these newer callings are, of course, quite different in their character, and will call for quite a different kind of training from that of the old so-called learned professions. It will hardly be possible to turn through the halls of our universities, even though they be multiplied many fold, all those who expect to enter in one capacity or another the great world of business. And for many a long day to come the great geniuses in this department will probably be men who have had no university training; for the 'wind bloweth where it listeth' and many a genius will sprout and bud and flower in this domain who has not seen even the outside walls of a preparatory school or college or university. But we have already reached the time when the subject matter relating to the world of business has a content which is susceptible of scientific treatment, the study of which, under proper conditions, may become a valuable element in the preparation for business. The time has come, therefore, when the college of commerce should be one of the constituent colleges of the university.

So I expect to see this institution increase the number and quality of its professional schools as the years go on, until it will have developed into a full-fledged university of the broadest scope, capable of answering to the multiform needs of a great commonwealth.

In a word, this institution will most fully perform its duty to the people of this state if it will stand simply, plainly, unequivocally and uncompromisingly for training for vocation, not training for leisure—not even for scholarship *per se*, except as scholarship is a necessary incident to all proper training of a higher sort for vocation, or may be a vocation itself, but training to perform an efficient service for society in and through some calling in which a man expresses himself and through which he works out some lasting good to society. Such training for vocation should naturally, and would inevitably, if the training were of the proper sort, result in the awakening of such ideals of service as would permeate, refine and elevate the character of the student. It would make him a scholar and investigator, a thinker, a patriot—an educated gentleman.

It is apparent to any one who knows the present condition of the university, and for that matter of any of our American universities, that such a conception as this calls for a continued growth at the top and a lopping off at the bottom. In other words, it requires an increasing standard

of admission to the university, and an extension of the scientific character and quality of the work done inside of the university. And this development I consider will be as inevitable as the ebb and flow of the tides. My own idea is that the university ought not to be engaged in secondary work at all; and by secondary work I mean work which is necessary as a preliminary preparation for the proper pursuit of special, professional, that is scientific, study. Consequently, our secondary schools, our high schools and our colleges will be expected to take more and more of the work which is done in the lower classes of the various departments of the university as at present constituted, until we shall have reached a point where every student coming into the university will have a suitable preliminary training to enable him to take up, with profit and advantage, university studies, in a university spirit and by university methods.

Every community in this country ought to furnish the possibility of securing this secondary training as near as possible to the heart of the community itself. Certainly every town of fifty thousand inhabitants, and, perhaps, every town of twenty thousand in the United States—surely every county in this state—should be able, through the activity either of public agencies or of private beneficence, to offer the facilities for acquiring this secondary grade of education which is appropriate to the high school and the college. Surely it is true that the work done at present in the freshman and sophomore years at the University of Illinois, and for that matter in any of our American universities, may just as well be done, so far as the quality of the work is concerned, at any one of fifty or one hundred centers in the state of Illinois, as at Urbana; provided only that adequate provision be made for giving this instruction. And this adequate provision need not be very expensive. There comes a time, in the growth of attendance at any institution, when it reaches its maximum efficiency. I have no doubt myself that in another ten years, unless we should have some great economic backset, there will be ten thousand students in the state of Illinois, who will want the kind of work and the grade of work offered in the freshman and sophomore years of the University of Illinois. Now it is to my mind perfectly apparent that it would be undesirable to have ten thousand freshman and sophomores in the State University at Urbana. It would be far better to have them scattered over the state at fifty other institutions, provided we can get these institutions to take care of them properly, and then send those of them who may desire the more advanced work up to the university.

So then, the institution must be lopped off at the bottom and expand at the top in order to become that true university of the state of Illinois which will render the largest service to the people of this community. We have, in the development of our college of agriculture a very excellent illustration of how, with the growing standard of this state, an individual professional school will gradually change its entire character by the continued raising of its standards. Thus far, we have been practically accepting in the college of agriculture any young man who desires to avail himself of the advantages for instruction offered here, and who seemed to the faculty likely to be able to do the work, without reference to his formal preparation. At the present rate of growth, in another ten or fifteen years there will be five thousand young people in this state who will want to pursue these studies. It would not be possible or desirable to take care of these five

thousand people in the college of agriculture at Urbana. I expect to see secondary schools of agriculture established at different points in the state where those who wish technical work of secondary grade can secure it near home, and from these the best trained and the best fitted will be sent up to the college of agriculture at the University of Illinois for their advanced training.

One may ask, at what point will you cease to raise these standards of admission? I think the answer to that question is very simple, namely, when we shall have succeeded in requiring from the young men and women who enter the university that degree and kind of preliminary education which, from a pedagogical and a social point of view, best qualifies them for the beginning of special, *i. e.*, scientific, training.

You will see from the above sketch that I look upon the university as an institution for the training of men and women, not of boys and girls. The latter, I think, is distinctly the work of the high school and the college, and the sooner it can be relegated to them, the better for the young people themselves, for the schools and colleges, for the universities and for the community. I have no doubt myself that when our educational system is as fully developed as is our commerce and our manufacturing, we shall see this differentiation of function.

But this institution will be and become not only a university in general, but it will perforce be a particular kind of a university. It is and will remain a *state* university, and certain consequences for its future flow from this fact.

The first thought in this connection is one of limitation. As a state university in America, there are certain things which it can not undertake, at least within any period which is worth our while to prognosticate for it. The old traditional university of the middle ages and later times consisted primarily of the three faculties of law, medicine and theology. The philosophical faculty was later added and in a few instances still another faculty was added, making usually four and sometimes five in the typical university.

The theological faculty was thus from the beginning an essential part of the university. It was an element of the university idea. A university without the theological faculty can hardly be looked upon, from a theoretical or historical point of view, as a complete university. Certainly the vast majority of thinkers would say that the absence of a theological faculty is a serious defect in an institution which aims to be a complete university. From the standpoint of the church I have always felt that it was a great disadvantage for it to educate its priests or clergymen in theological seminaries isolated and monastic instead of in theological faculties forming part and parcel of a great university which is itself in many respects a microcosm and life in which prepares for the great life of the world outside.

But in this country, of course, the state university can not undertake to establish a theological faculty for a long time to come, if ever; in fact, not until there is a substantial agreement on the question of religious beliefs and practises, at least so far as fundamentals are concerned. This day is certainly far in the future, and until it comes, the state universities in this country will certainly not organize or support theological faculties.

But we have gone somewhat further in our actual practise than our theory of separation of church and state might call for and we have cut from our curriculum of studies all courses bearing upon religion, even upon the history of religion.

I can not help thinking myself, that this is a serious limitation both to the university and to the church, none the less real and serious, because under our circumstances it may be necessary as a condition of development of the highest usefulness of the state university.

Let us not make a mistake here, however. The cutting out of formal religious instruction from the curriculum does not mean that a state university is necessarily non-religious, or anti-religious. An institution is religious or the opposite chiefly because the community of which it is a part is religious or the opposite. The character of the state university, like that of all the other institutions of the country, will be determined fundamentally by the character of the people itself. How true this is in matters of religion may be seen by the actual facts concerning our state universities. Thus, all of you who have followed the work of the Young Men's Christian Association must have been struck by the fact that it has no more active and vigorous centers of life than those in our state universities, and the international secretary of the association stated some time ago that the largest, strongest and best organized college Christian Association in the world was to be found here among the students in the University of Illinois. Religion, the religious spirit, the reverent attitude and all which is bound up with what is best in religion is not something, of course, which can be shut up within the dry bones of statistical tables, and yet the figures collected by our young people who have been interested in this matter show that there is very little difference between the number of students who are members of the church, for instance, at our state universities and at the other great educational institutions of the country—which would seem to bear out my proposition that the fundamental fact is not after all the presence or absence of religious instruction, but rather the character of the community from which the members of the state university are drawn.

At the same time, any one who is a believer in the state university and its function can not help regretting the feeling which certainly has prevailed in certain circles in the past if not in the present, that the state university is in a certain way anti-religious in its atmosphere and its work; for we can not close our eyes to the fact that whatever you or I as individuals may think of religion and religious training, the great mass of the people of this nation are deeply concerned that their children should be brought under what they conceive to be proper religious influence early in life, and should remain so throughout the college and university years.

It is then a matter of congratulation to those of us who have seen in this opposition to the state universities a certain menace to their prosperity, that there are many signs that this particular difficulty is going to be met in what will be an extremely satisfactory way to all concerned. The great religious denominations have come to recognize that these institutions are destined to grow and increase with every passing year, and that the state of which they themselves are a part will never agree that the principle of the separation of church and state shall be infringed upon to the extent of providing religious instruction in state universities, and that therefore the duty is upon them to see that adequate provision is made for this great need. They are solving it in different ways. They are in some instances erecting guild houses and dormitories where the children from the families of their particular faith may find centers of influence and help. In other places they are providing lectureships upon religious subjects for the bene-

fit of any students who choose to attend. In some places they are beginning to imitate the Canadian system so well exemplified in the University of Toronto, of organizing local colleges with the specific purpose of offering instruction in religious topics and in other subjects which the state university may not adequately support for the benefit of students who desire to take such work.

For my own part, I believe some such device as this last named will be found to be a very satisfactory and helpful one, and that by this means we shall solve this problem, which is none the less real and serious because we have too often been inclined to close our eyes and ears to the facts and refuse to consider the question, imagining that if we could only bury our heads in the sand we should be free from the necessity of meeting it and grappling with it. When we can combine the freedom of the state university with the opportunity for instruction in religious matters which the great mass of our people holds to be desirable and necessary to true education, we shall have taken a long step toward solving not only this particular problem, but many others which touch it and ramify from it in many different directions.

But if the first thought growing out of the fact that this is to be a state university is one of limitation, the second and prevailing thought is one of freedom, of privilege, of ease of movement, of facility, of adaptation.

No one will certainly accuse me of underestimating the work or importance of the non-state university. I owe my own education entirely, after leaving the public high school, to the non-state school, particularly to the denominational, if not sectarian, school, and my own work as professor and president has been, until I came here, entirely in connection with such schools. Northwestern, Harvard, Pennsylvania, which though in name a state, is in fact a private institution, and Chicago represents the course of my student and professional life. No one, I believe, can entertain a deeper feeling of gratitude to these institutions and to the men who have founded and built them up, than I. No one can have a higher appreciation of the value of their services to the community than I, and I may say that the more I learned about each of them, the more I was impressed with the magnitude of their service to the community.

The University of Chicago, for example, has not only done the ordinary service which any well equipped institution of higher learning does, but it has played a most important part in advancing the standards and educating public sentiment on higher education throughout the Mississippi Valley. It is not too much to say that every institution of college or university grade in the middle west has profited directly or indirectly by the magnificent work of this institution—and by no means the least among them, the University of Illinois. It may not be out of place for me to say that the University of Chicago has been in large part, from this point of view, William R. Harper, whose absence we so much regret on this occasion. If Chicago University had done nothing else in the last fifteen years than provide an opportunity for the blessing-bringing activity of William Rainey Harper it would still be worth to the community all it has cost.

But even if I owed no personal debt or obligation to these institutions, if I had never for an hour enjoyed the benefit of instruction within their halls or from any one who came from them as teacher, still I should certainly be a blind, ignorant guide indeed if I should by any remark of mine belittle these institutions or derogate in any way from the glory which properly belongs to them. We believers in

state universities, whatever we may think of the future, must certainly acknowledge that we owe everything that we have been, and almost everything that we are, to these non-state institutions. If the history of American education were to be closed to-day, certainly the chapter devoted to the work of the state university would be very short and unimportant, indeed, as compared with that which should relate the history and services of the non-state institutions—Harvard, Yale, Brown, Columbia, Princeton, Leland Stanford, Dartmouth, Oberlin, Johns Hopkins and the hundred others—what a galaxy! and how proud we all are of them and their work! No thoughtful man, it seems to me, however much he may desire that our state university should wax, would like to see these non-state institutions wane, and I believe we should all feel that anything which would injure the efficiency or the work of any one of these institutions would be a calamity pure and simple.

In my own view, Northwestern, the Armour Institute of Technology, the University of Chicago, Milliken University, and the score and more of other non-state institutions engaged in the educational work of this state, are a vital, fundamental and essential part of the life of this community. I can not, of course, foresee how many of the numerous small colleges in this state are destined to survive. Some of them, perhaps, may disappear. Others, I believe, will be newly founded. All of them, and more too, will be needed when the population of this state shall be ten millions, as it will be before many years. But even for the present I can not help feeling that any means by which such institutions as Lake Forest, Knox College and the Wesleyan and McKendree and Illinois and Shurtleff and St. Ignatius and a dozen others can be enabled to do their work in a thorough and efficient manner, will be a cause for congratulation to every lover of education. We are all part of the same enterprise, engaged in working out the educational problems of this great commonwealth, and that enterprise is going to be the greater and the more glorious in proportion as each of us is enabled to do fully and faithfully his part and portion in the work.

I am a great believer in the desirability, nay, from certain points of view, the necessity, of a complete scheme of state education from the kindergarten through the professional school. I believe the state owes it to itself, to its own people, to the nation, to provide such a scheme of education.

But I have never felt that the system of state education should be monopolistic in character, should be exclusive, *i. e.*, should try to cover the entire territory and the entire field to the exclusion of church or private agencies. The extent to which the private institution has been driven out of the field in Germany and France has been and is a serious intellectual, material and spiritual loss to both these countries. On the other hand, the extent to which higher education has been left entirely to private hands in England has been equally serious and damaging to the interests of that country. The extent to which we have brought about a cooperation between the principle of public and private initiative in the field of higher education is a striking illustration of our good fortune, if not of our insight—for after all it has been largely accidental. It is desirable that the state of Illinois should have a state university, no matter what the church or private individuals may do, no matter how many institutions these may build up by its side. It would be equally *un*desirable if the state of Illinois should attempt by either direct

or indirect coercion to drive everybody desiring higher education into the state university. Northwestern University, and Chicago University, and the Armour Institute of Technology, and Milliken University and the many small colleges in the state are taking care of students of college and university age, in the aggregate far in excess of the number provided for in the state university. And in my opinion they always will, and, further, they always should.

In other words, while I am a firm believer in the principle of a state system of education from the lowest grade to the highest, I believe also thoroughly in utilizing, as far as possible, the assistance of all other agencies in the same department of education. And this cooperation will, in this country, for aught that we can see, for an indefinite period be not only desirable, but necessary to meet our educational needs.

It is the non-state institution then in England and in this country which has been in a certain sense the 'ark of the covenant,' which has carried on from generation to generation the precious deposit of learning and has been the intermediary by which the spiritual possessions of the past have been carried over and made the possessions of the present.

Endowed institutions, whether under private or church control, have thus done a vast service. But, on the other hand, they have the defects of their virtues. Educational institutions, whether private or state, are by nature conservative. They resist changes and improvements. They fight progress almost as by a law of their being, and the greater their endowments, the more completely they are removed from the necessity of appeal to the life of their own generation for support, the more set do they become in their conservatism, the more bulwarked in their opposition to all progress. They may by their wealth defy the currents of progress. They may oppose themselves to all forward movements. Not only may they do so, but in nearly every instance in history they have done so. The history of every European country demonstrates that these bodies, the universities and colleges, have had to be reformed by law. Left to themselves they have suffered of dry rot in an extreme form. Oxford and Cambridge fought bitterly all attempts to force them into line with modern progress. It was the forcible subjection of the German university to the directing power of the government which broke up the crust of conservatism and paved the way for that wonderful career of progress which put Germany at the head of scientific progress. Even in our own country our colleges and universities have the same opposition to education and progress to record. If the people in this country had handed over to college and university faculties the decision of the important educational questions which they have had to settle in the last fifty years, we should have to-day practically no high school system, or one of comparatively little value. We should have no system of state universities. We should have, to a large extent, no professional schools of high quality at all. It is, indeed, a question whether we should have even an efficient free common school system.

Fortunately for us, however, our institutions as a whole have been so poverty-stricken that they have been compelled to appeal to the community continually for funds, and in doing so they have been forced into lines of progress which have become more and more evident in the past few years. I am a great admirer of Harvard University, easily the greatest of our universities; I am a great admirer of Harvard professors, and especially of that

great man, the present president, *facile princeps* among the leaders in American education of the last twenty-five years, Charles W. Eliot, but I do not believe there has ever been a time, down to within a very recent date, when, if the faculties of Harvard College could have had absolutely their own way, and had had money enough to persist in their own way, they would not have committed themselves squarely against every question of educational progress which the scope of the times has brought to them. And what is true of Harvard is still truer of the less progressive institutions of higher learning, of which we have many.

So I believe it is necessary, friends, by the side of this system of private, endowed, church institutions, to maintain a system of state institutions. By the side of these other great institutions of learning it is necessary in this country to maintain the state university, which, because of its entirely different origin, because of the different influences to which it is subject, can work out a supplemental scheme of education in many different directions, extending into many fields which would be neglected in all probability by these other institutions. Such an institution, even though not a leader by choice, will by its very constitution be compelled to adjust itself to modern demands and thus force the other institutions which wish to exist by its side into a larger and more liberal view, and finally into what is clearly the line of progress.

The state university is necessary in order to help maintain the democracy of education; to help keep education progressive; and finally in order to keep higher education close to the people, and make it the expression and outgrowth of their needs.

As a *state* university, we may properly demand from this institution that it undertake certain functions which it is not so easy for other institutions to assume.

This institution as a state university may become more directly and immediately the external expression of the corporate longing of the people for higher things in the sphere of education than can any other type of institution. This is said with all due regard for and due recognition of the real way in which the private institution has entered into, and is a real expression of, the life of our people. Fortunately, we have never needed to fear, in this country, what some of the continental nations seem to have feared, namely, that institutions of learning under private or church auspices would work against the public interest of the community of which they are a part. The fundamental object of all institutions of higher learning may be summed up from one side, as the creation of the highest and most efficient type of citizen. And fortunate it is for us that we may truly say to-day, as in all previous periods of our national history, that all our higher institutions of learning, whether founded by private individuals or by religious sects, have in this respect worked out the same beneficent result for the community; that the graduates of all these schools alike have been to the same extent good citizens, have been devoted patriots, have been self-sacrificing and public-spirited members of society.

And yet I can not help but think that an institution, in the establishment and endowment of which every citizen feels that he has a direct and immediate share, expresses in a certain way more fully his desire for higher things in the field of education than can any other type of institution.

As the citizens by their combined effort make it possible to raise the standard, enlarge the outlook and increase the equip-

ment of such an institution, they are by this very act themselves widened in their own outlook, enlarged in their own sympathies, quickened in their own higher life. And as this institution is thus made more efficient, it again in turn reacts upon the quality of its clientele and its constituency by turning back into its midst an ever-swelling number of young people, who in their turn by their higher education and their more efficient training raise the level of the society from which the institution springs. And so there is a real moral influence, and a real moral power proceeding from this relationship between the state university and the citizen, which is none the less real, none the less effective because, like all spiritual things, it is impalpable, and, to a certain extent, elusive. And just as the creation of the public elementary school opened a new era in the consciousness of the American people as to its duties toward education, just as the creation of the public high school has opened a new outlook, established a new consciousness on a higher plane of the duties of the community as a whole in the field of secondary education, so the creation of the state university has marked a new, a forward, an upward step of no mean importance and no mean power. It is a great step to get a whole people to recognize in its corporate capacity that one of its fundamental duties is higher education, and that one of its fundamental purposes should be the creation of organs of activity which should realize and carry out this fundamental function. It means that the whole people has passed on into a new and a higher state. It is no longer an appeal to a man as a Christian that he should look out for the education of the community of which he is a part, and to which he owes a duty—surely a high appeal—it is no longer an appeal to the Baptist or the Methodist or the Presbyterian that he owes it to the church and that the church owes it to itself to look out and provide for the existence of church institutions of higher education—surely a high appeal—nor is it merely an appeal to him as a philanthropist, striving as an individual to return to society some part of the wealth he has achieved; but it is a far more fundamental, a far more universal appeal to him in his capacity as a member of society, whether Catholic or Protestant, whether Baptist or Presbyterian, whether rich or poor, that this duty to assist higher education is as complete and all embracing and fundamental as any other duty of citizenship. There is no doubt that when a community reaches this point of view it has passed onward and upward into a new and a higher state of educational consciousness with an ever wider educational outlook, and with the promise of undreamed of visions in the years to come.

It is a necessary part of the idea of a *state* university that it shall be an organic member of the state system of public education, and that while, therefore, in a certain sense it is the crown of this system, it must rest solidly and securely upon a sound basis of secondary and elementary training. No state university can become the most efficient instrumentality for educational work within its jurisdiction unless it is built up upon a sound system of elementary and secondary schools from the kindergarten to the university itself.

It follows from this that the university must itself be an active organ in developing, if necessary in creating, in refining, in elevating, the character of this elementary work; for without it the university can not become a true university at all.

It follows, moreover, that the university must be most intimately and continuously associated with the scheme of elementary

and secondary education. It must be so immediately based upon it that there shall be no gap between the university and this scheme of preparatory work.

From this, several consequences follow, some of them beneficial and some of them, if not injurious, at least antagonistic in a certain sense to the highest and most rapid development of the university.

The state university can not require for admission what the secondary schools of the state can not give, and if these remain few in number, and of a low type, the university itself must be content with living upon a lower plane of usefulness than would otherwise be the case.

It is a natural outgrowth, therefore, of this essential fact that the state universities were the first of the higher institutions to get into close organic touch with the great element of the secondary system, known as the public high school, and that they have worked beneficently upon this system of lower schools, sustaining, lifting and improving it.

It follows, also, from this that the state universities were the first to find it necessary to adapt their own requirements of admission, to adapt to some extent their own curriculum, to the needs of these secondary schools which have a much wider function than that of simply preparing for the university. And so the state university has been determined in its educational policy by the needs of the secondary school itself, thus bringing about a most intimate relation. The result of this intimate relation between the state university and the secondary schools has been that the university in all the states where it has been put upon the proper basis, has been the most active and energetic influence urging the community to develop in an adequate way the secondary school system.

The statement is sometimes made by opponents of large appropriations to the state university that you had better spend more money on your lower schools, and less on your higher, if you desire to improve the educational quality of the public school system. No graver mistake could be made than that which is involved in the ordinary understanding of this proposition.

You can not have good kindergartens unless you have good primary schools. You can not have good primary schools unless you have good intermediate schools. You can not have good intermediate schools unless you have good high schools. You can not have good high schools unless you have good universities. In other words, no community reaches the upper grade of efficiency in its elementary schools, except by establishing and improving the quality of its higher schools. This is so apparent to a student of education, and seemingly so difficult of comprehension by the general public, that a further word may not be out of place.

Suppose a state had ten millions of dollars to spend on its school system. My proposition is that a considerable portion of that should be spent upon the highest grade of the system, the university, in order to secure the effective expenditure of the money in the lower grades, and that if you were to spend ten millions of dollars upon your primary schools and nothing upon your higher schools, you would have a far inferior system of schools to what you would have if you provided for an adequate scheme of higher institutions.

Certainly you can not have good schools unless you have good teachers, and all our experience shows that you can not have good teachers in any grade of schools unless you have good schools of a higher grade where these teachers may secure their preparation. Moreover, there is a subtle moral force ever at work in school

matters which makes it impossible to secure the highest point of efficiency in any grade of the school system unless it looks forward to and prepares for something higher. You can not have good schools of an elementary grade unless there is the opportunity for your best pupils, for those who have the time and money, to pass on up to ever higher grades of study. This is the justification of the high school, the college and the university from the standpoint of the eighth and seventh and sixth and first grade of the elementary school.

As a *state* university this institution will have intimate relations not merely with the high schools and elementary schools of the educational system, but with the other great element of the secondary scheme, namely, the normal schools.

Many people have thought that the normal school is in a certain way merely a temporary element in our educational system. It is intended to train teachers for the elementary and secondary schools. And there is a feeling in many quarters that as our high schools improve in quality and our universities multiply, the necessity of our normal schools will disappear.

I have no doubt myself that the normal school will change profoundly its character in the course of years, though how it will change I do not profess to know; but that it will, within any time for which it is worth our while to plan, become a superfluous element in our scheme of education I do not believe at all. Develop our universities as much as we may be able, develop our colleges as much as private enterprise and church initiative may assist us in doing, we shall still not be able to secure for our elementary and secondary schools an adequate number of properly trained men and women without the assistance of these normal schools.

I believe that they should stand in the very closest relation to the state university, and I believe that it should be possible to organize their work in such a way that persons who intend to prepare for the work of teacher in the elementary and secondary schools of the state, and for the position of superintendent and other similar administrative positions, should find it possible to pass either through the normal school and then through the university, or through the university and then through the normal school, as they may find it most convenient. I believe that all our universities would find it to their advantage to get into touch with this great normal school system, but for the state university this is an absolute essential.

The state of Illinois has established five great normal schools and has equipped them in a most liberal way, and will continue with increasing liberality to keep them fully abreast of the times. They are doing a work which no other element in our school system is doing, and I expect, for my part, to see them improve and grow rather than decrease, and the state university and the normal school together will form, if you please, a single institution for furnishing, in the most efficient and economic method practicable, properly trained men and women for the great system of public schools supported by the state.

But the state university, it seems to me, must proceed further than I have thus far indicated, and with one or two brief suggestions as to some of the directions in which the state university will develop, I shall bring these considerations to a close.

The state university will become more and more a great civil service academy, preparing the young men and women of the state for the civil service of the state, the county, the municipality and the township, exactly as the military and naval

academies are preparing young men for the military service of the government.

The business of the government is becoming more and more complex with every passing year. The American people is beginning to take a new attitude upon the subject of its civil service. Formerly it was thought that anybody who could read and write was fit for almost any position in the service of the state, and for a long time in the history of the country it was thought that the most practical method of selecting men and women for positions in the civil service was by their affiliation with and devotion to political parties or political factions. We are coming to a recognition of a new state. The abuses of politics have led the American people to the general acceptance of a principle, very far from being worked out as yet, under which men and women shall be selected for the civil service by a method which shall eliminate the element of political affiliation (I am speaking now of the administrative positions in the narrow sense of that term), and every passing year sees some new strengthening of this principle of the so-called merit system under which people are selected for posts in the public service on other grounds than that of party devotion.

But we shall not be satisfied very long with this condition of things. Public administration is becoming with every passing year a more complex subject. It calls for special knowledge. It calls for the trained mind and the trained hand. It will not be long, therefore, until the American people will, for many positions now practically open, insist that the holder shall be properly trained and qualified to perform the duties of that particular office; and now that the state offers every opportunity to secure an education not merely in the elements of learning, but in the secondary and higher grades as well; now that the state offers an opportunity to procure practically free the technical training necessary to qualify people for these posts, we may expect to see more and more a standard of efficiency set up and insisted upon by the people of this state, for all persons entering the public service. In an age of excellent courses in civil engineering supported by the state almost free of charge, we may expect to see the state require that the civil service aspirant in the field of surveying, for example, shall be a man of scientific training, not merely one who has learned his business by mere rule of thumb. We shall expect to see every municipality demand and employ men of careful scientific training to test its water supply and its food supply. In other words, the time of the haphazard, happy-go-lucky, hit or miss public official and of the ignoramus in the department of public administration is passing away in favor of the scientifically trained man who knows his business. Now the people of this state have a right to demand of the state university that it shall turn out men and women properly equipped for this kind of work, and who will return to the state in efficient service a thousandfold over, the cost of their trainng.

Now, all this you will note is in addition to and quite apart from the function of the state university as a center for the training of men and women who wish to enter the learned professions, a topic which has been discussed previously. To my mind, if the state requires an examination of proficiency from anybody as a condition of practising any profession, it should itself provide the centers properly equipped, where the requisite training may be obtained. And as the state may undoubtedly increase this supervision over callings now left free, we may expect to see the state, in the state university, provide opportunities for study in many directions which are not now to be found at all.

But the state university must be and become more than a civil service academy. It is and is destined to become to an ever-increasing extent the scientific arm of the state government, just as the governor and his assistant officers are the executive arm and the judges and the courts are the judicial arm.

As the business of government becomes more complex, the problems which the state has to solve in many different directions become more difficult, requiring in many cases most careful scientific experimentation and long-continued investigation, for the pursuit of which there must be adequate laboratory equipment and trained investigators. For all such work the state university is the natural and simple means already provided.

I have called attention to the fact that here in the University of Illinois are already located, for example, the state water survey, the state natural history survey, the state entomologist's office, the state geological survey, etc. There is no doubt that if the university is properly organized to undertake this scientific work in a way to make it thoroughly effective, it will, to an increasing extent, be constituted the scientific arm and scientific head, if you please, of the state administration.

It goes without the saying that this concentration of the scientific work of the state government at the university has most valuable educational results. The increasing number of scientific men centered at the universities helps create that scientific atmosphere, that scientific spirit which is absolutely essential to the upbuilding of a great university. This union of scientific investigation and educational work is a most fortunate combination for both sides of the enterprise. The scientific work for the state government offers an opportunity to train the young men in actual practise, and by thus securing their interest in and training for such work the government is able to obtain an ample and regular supply of properly trained workers in this field. By such a union the state secures the maximum of service at a minimum of cost.

Further, the state university will, I believe, in combination with the normal schools become practically, for many concrete purposes, the state department of education. We have already in this state and in most of the American states a state department of education, consisting usually of an officer called the state superintendent of public instruction. His duties, however, are comparatively narrow, as prescribed by law. The possibility of performing them is determined by very meager appropriations. Usually speaking, it is an office entrusted with the enforcement of the school laws and the distribution of the school money. The functions of the public ministry of education such as one finds in so many of the European states either are entrusted to him in a very small degree, or he is enabled to carry out these functions only within very narrow limits. The duty of canvassing the educational needs of the state from time to time, urging and impressing them in a strong way upon the people of the state, not merely upon the teachers and the legislatures and the government, but upon the great masses of the people—this is something which our American departments of education have done only to a very slight extent. Now and then a strong personality in the position of state superintendent has worked out great things for the education of the state. We have an example of such a personality in the superintendent's office of the state at present. But there is need of a more continuous, of a wider spread, of a more deeply rooted, activity in this direction, than the state superintendent's office under existing conditions can develop. Such a

function, within certain limits, I believe the state university combined with the normal schools can perform. The department of education in the state university organizing the resources of the state university for this particular purpose may bring to bear upon the educational problems and upon the educational needs of the state, an expert opinion which it is not possible to find in any other department of the state administration.

This function, it may be said, is not performed by the university in its capacity as a civil service academy, preparing teachers for the educational service of the state. It is larger and wider than this. It is a recognition of the university as one of the organs created by the state for determining, within certain limits, the policy of the state in the great field of education.

And thus I might proceed with a summary of other great things that are waiting for the state university if it only knows the day of its visitation; if it only measures itself up to its opportunities; if it only performs faithfully and simply the duties which the state thrusts upon it.

But time presses and I must draw these considerations to a close. I have left untouched many things you may have expected me to discuss, not because I do not consider them as important, but either because I regard them as so fundamental that we should all agree upon them or because the limitation of time does not permit even their mention. You will have gathered from what I have said my conception in general of the function and future of the state university.

It may be defined in brief as supplementary to the great system of higher education which private beneficence and church activity have reared, and it is to be hoped will continue to rear. It is corrective rather than directive; it is cooperative rather than monopolistic; it is adapted for leadership in certain departments, but must look to the non-state institution for leadership in others. It should be as universal as the American democracy—as broad, as liberal, as sympathetic, as comprehensive—ready to take up into itself all the educational forces of the state, giving recognition for good work wherever done, and unifying, tying together all the multiform strands of educational activity into one great cable whose future strength no man may measure.

Edmund Janes James.
University of Illinois.

SCIENTIFIC BOOKS.

Structural and Field Geology, for Students in Pure and Applied Science. By James Geikie, LL.D., D.C.L., F.R.S., etc., Murchison Professor of Geology and Mineralogy in the University of Edinburgh, formerly of H. M. Geological Survey, author of 'The Great Ice Age,' 'Prehistoric Europe,' 'Earth Sculpture,' etc. New York, D. Van Nostrand Company. 1905.

This is a well-made and attractive volume of just the maximum size which long experience has shown to be the largest permissible for a handbook. It is of exactly the same dimensions as the first volume of Chamberlin and Salisbury, and although by the choice of a thinner paper the American book numbers two hundred more pages, it contains so many more figures that the text of the two is of about the same length.

Although the two books take opposite points of view, the one describing structures with little explanation, the other discussing processes with brief illustration, it is interesting to compare them. The Scotch book is as conservative as Edinburgh, the American as radical as Chicago. The former proceeds along the ancient ways with a leisurely fullness that is very attractive to a veteran, and recalls the time when he devoured Jukes or Nauman. The rock-forming minerals are described in detail, and the rocks with even greater fullness. The word petrography, with