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A NATIONAL UNIVERSITY

THE addresses by Presidents Van Hise and James, published in the August 16 issue of SCIENCE, splendidly set forth the facilities in Washington for advanced study and the reasons for a really national university. The administrative and physical organization, and also the national purposes of the proposed institution, need broad discussion.

Though its promoters might conceive the projected institution as snugly centered in a building beside or as a part of the Bureau of Education, with students directed to attend lectures in one room in each of a few scores of governmental bureaus, and working in the bureau laboratories under the seasoned government scientists, that could not be more than its preliminary stage. The mere name, "University of the United States," backed by the reputation of the scientific bureaus and libraries of Washington, would soon bring such a flood of American and foreign students that the snug executive office would be overwhelmed and the bureaus would be in revolt.

A national university at Washington must be a physical university, with existing bureaus only as adjuncts. History will prove the statement that bureau scientists and equipment can be used only incidentally. Men in charge of research and administrative science, applied to the increasing of production, to policing under pure food inspection or quarantine and other laws, to surveying natural resources, to administering public forest and other business, to promoting the public health, and even to administering educational and gen-

eral public executive affairs, can be teachers and guides to research students only in an incidental way. The number of students would eventually make demands far in excess of that five to twenty per cent. of the energies of each leading scientist which can properly be devoted to graduate students. The university will want the services of only the seasoned workers, nearly all of whom have much scientific and administrative work. While President Van Hise's statement is very true, and admitted by nearly all research workers, that some teaching is a help to the scientists' research work, yet there is always the danger that the teaching will become too heavy. Students come, and the demand on the scientists' time is well nigh irresistible, as is generally proved in case of the workers in the experiment stations in the state agricultural colleges and universities.

These bureaus are even now more effective graduate schools than most people realize. The government bureaus in Washington constitute the most efficient graduate university on earth. The students (employees of the departments) are picked out by the Civil Service Commission and are employed at living wages by Uncle Sam. They enter at once under seasoned scientists into the actual technical work for which they are already in part trained by their college and university education. They are chosen on the basis both of their ability to render service and their promise of developing ability. The average is far more efficient than would be the graduates of our state universities, too many of whom "go on and take yet one more higher course because they have not impressed their teachers that they have the practical ability to succeed" and therefore were not among the graduates at once recommended for positions. This present "working university" gets the young men, and women, who are trained to do things, rather than those who can merely learn of things. These would of course continue to come, but these virile heads of bureaus and laboratories would indeed be loath to devote their time to a dilettante class of rich young men and women of native and foreign birth who come mainly to seek one more degree from the "greatest university."

A flood of these people would not only spoil the work of the departmental bureaus, but would tend to help keep the face of our educational system turned away from the more vital, toward the less vital. Our universities are already too far removed from the people. They so often look down upon the great major industries of agriculture, trades and industries and home-making, that it is refreshing to observe that the universities of Wisconsin and Illinois, over which the two speakers above mentioned preside, are turning the tide and (in the words of derision of a fellow university official) they "are spreading the university all over the state." The dangers to university life from the wealth of its students might easily be much greater in Washington than in any of the second-class universities. It would soon be in a class by itself in size and in the financial resources of its student body. I am not a pessimist, but this, as all other organizations, should be started right. To be started right, it must be built in the interests of the whole people, ninety per cent. of whom are the common people. The individual interests of its students and the interests of the universities from which they come are very secondary matters. The interests of science and of the masses are its real purposes. It must improve and correct wrong educational tendencies rather than enhance them. One of its functions should be to help turn our educational system about so as to be more vital to that

ninety per cent. who are our productive classes and home makers.

Its functions can not rightfully be to merely produce men and women with so-called higher education, as too many of our higher schools of learning have too much contented themselves with doing. Recognizing that an educated aristocracy is little better than a money aristocracy, it must train people for such specific forms of service as the times require. It must train individuals, not primarily for their own interest, but that through research, invention, teaching and other forms of leadership the whole people may be made more efficient and successful. It must train workers in lines especially needed for the public good. It must not merely duplicate the state universities and colleges, but must supplement them by taking up lines they can not or will not undertake. While holding to the grade of master's degree for entrance requirement may seem a technical necessity from the mere viewpoint of the interest of the state university, yet why deny the fostering direction of such an organization to a woman, who as mother and public worker, though not a graduate, has become highly qualified to do advanced work in relation to woman's work or to children? Would it be wise to bar a man who through greatly beneficent labors for the farmers, even including a state and national legislative experience, from coming here to further equip himself for his chosen form of science or other public service? Why debar the labor leader, who has graduated in valiant and successful campaigns for the working people, because his master's degree did not come from a university? I am sure that Presidents Van Hise and James will be the last of all university presidents to run around in a circle on this matter of the breadth and depth of a national university when the whole subject is "before the house." Surely some way can be found, broader than mere graduation in a college or university, for determining who can use the facilities of the university to advantage. Achievement, not mere study, native adaptability and need, practical experience, self cultivation, along with school preparation, and promise of unusual power for public service, should be considered in selecting those eligible to use the offered opportunities for the common good.

The passing of the era of confining educational propaganda mainly to the discussion of higher education, so-called, and the entrance of the discussion of vocational education for the masses, places the discussion of any proposed university upon an entirely new plane. The educational sun has begun to shine down where most of the folks live. Their clouds are clearing away, and the light of modern science and benefits are not confined to the higher regions, educationally. The farmer, the man at the machine, the shop foreman and the mother in the home, are to have technical training, as well as the lawyer, the doctor, the preacher, the teacher and the technician. It will be different, to be sure; a larger part will be practical, but it will be substantial and effective in increasing the production and the remuneration, as well as the enjoyment, of the ninety per cent. Incidentally it will benefit also the professional classes; just as their education enables them to be of service to those who labor in the major industries and in home making, the technically educated masses will be of greater service to the professional classes.

A national university devoted simply to the interests of higher education might proceed to become a joke among folks who work for the masses. To place the possibilities of such an institution in the hands of administrators and teachers who see only

abstract science and professional interests would rob it of the larger share of its possibilities. With a vital connection with the mass of people it will be on a basis of service and growth of marvelous proportions. Secretary Wilson has shown the qualities of largest university administrative sense, in sending his young workers out to the work, wherever found in America or other continents, that they might be "seasoned" for their work in the broadest possible way. No other administrator at any time has built up such a corps of seasoned men, very many of whom have been supplied to universities and experiment stations in this country and abroad. The proposed university must touch the present problems of the people, else it will become academic and pedantic, and will be attended because its certificates are valued as a matter of fashion or family pride.

The atmosphere of science and art is becoming more and more vocational and democratic. While "pure science for science sake" is growing in number of workers and in character, applied science is growing much the more rapidly. There is much of both at Washington, and a national university should recognize every phase of both. And why should it not especially deal with those phases of science, art and citizenship, which deal with national life and the life of the whole people? A division of labor would place with the universities in the states matters of local concern and with the national university matters of interstate, national and international concern. Such an institution in this greatest of nations might in many ways function as an international institution. And why should it not receive, from private sources, endowments for international functions? Among these could be the creation of commissions, financed under the guidance of the university, to study international problems. As examples of these problems, the following are worthy of suggestion:

World-wide atmospheric and weather investigations.

Studies of the seal and fishes which inhabit the high seas.

Birds which are international in their habit.

World area statistics of crop conditions, acreages, harvests, stocks in transit and in store and prospective demand; and in connection therewith the international relations of markets which deal in margins on options and futures and thus place the ownership of margins along with crop conditions as factors in determining prices.

The welfare of labor which periodically crosses international boundaries.

International relations of currency plans.

Eugenic factors needing regulation in immigration.

Other endowments, made by the public or by private parties, might deal with very many interstate matters which can not so well be studied by local universities. Even a general scientific inquiry as to the reapportionment of functions between the federal and state governments might here be made. A study might be made of all our voluntary economic and fraternal associations. The legal department might properly lead in developing the principles of cooperative law as different from corporate law—laws under which cooperative forms of production, transportation, distribution, etc., would be encouraged, with a view to the democratization of much business now becoming less democratic under the corporation laws which make for business autocracy. Here vocational education might be studied with a view to broadening out our educational system to produce at once stronger citizens and more efficient producers of wealth and makers of better homes. Our state, national and international judicial system might here be studied with a view to ex-

pediting procedure and better insuring justice and equity.

Here the academic side of the work of many governmental bureaus and commissions could be broadly studied, with the aid of the men who are in the midst of administrative experiences. Thus help might be given to the work of the Interstate Commerce Commission, the State and National Food and Drugs Board, the Census Bureau, the state and national geological surveys, the Patent Office, the Pension Office, the Plant and Animal Breeding sections of the Bureaus of Plant and Animal Industry, also the Meat Inspection Service, the Forest Service, the Biological Survey, the Labor Bureau, the Bureau of Standards—but there are too many to enumerate.

And why should such a university not find ways and means of serving the great national voluntary organizations, such as the American Federation of Woman's Clubs, the American Federation of Labor, the Chamber of Commerce of the United States, recently established in Washington, the National Education Association, the reorganized Farmers National Congress, the American Breeders Association, and the American Manufacturers Association? That a really national university represent all interests, there is need that it be under guidance by the people, not by mere academicians nor by politicians. Mr. Bush-Brown's proposal that the regency be in part nominated by the great federated bodies of voluntary nonprofit earning societies of the people, as those mentioned above, and in part chosen by the President, would accomplish this need.

Such a method of uniting for a common purpose to study and reach the truth concerning questions affecting all classes would be the beginning of a broader viewpoint among all classes, as between capital and labor, between producer and transporter, between farmers and manufacturers. The presence of a representative of the American Manufacturers Association would insure the cooperation of that body. The presence of a woman from the American Federation of Woman's Clubs would insure greater activity in research so greatly needed in relation to home making. The presence of a representative of the American Federation of Arts would insure that the major arts of expression, as oratory, music, painting and sculpture, would be given a larger leadership. A member representing genetic organizations would help to bring forward eugenic, as well as euthenic, improvements in the race. Labor and capital would here be welded together in a flux of scientific facts. The presence of representatives of religious, ethical and political economic organizations would not only soften down animosities but would aid in bringing about an equitable division of wealth and more nearly uniform opportunities for all. Thus it would not be an over-university, dominated by an aristocracy of wealth and an aristocracy of education. Its roots, through these associations of the people, should go deeply into the lives of the masses who work and make our homes.

Instead of rooms in a building beside the Bureau of Education, it should be a great institution on a large tract of land. This land nearby can not be secured a hundred years hence, and it must be within a ten minutes' rapid transit trip of the departmental laboratories on and in the vicinity of the Mall. To wait to purchase land will make impossible the future greatness of the institution, and who knows but that it may not be a world institution? A few millions invested in land will be its greatest assurance of a broad basis and of a wonderful future. A goodly allowance of land will give opportunity to here work out much

that is needed to improve the outdoor recreational life of our people. When a hundred millions have been multiplied our population will more and more need leadership in the joy of living. Land will permit of instruction, outdoor laboratory work and practical experience in genetics, the creation of new forms of plants and animals by breeding, and other intense forms of agriculture and for recreation and outdoor art. Some of this can be so carried out as to give inspiration to the millions of sightseers from the states and from abroad.

While much can be arranged in way of part-time courses, as between the university and the governmental bureaus, much more of this practical mixing of real experience and schooling can be carried on in cooperation with factories, farms and other economic and professional work in all parts of the country and abroad. The local universities can be a party to many of these part-time courses. This will make it possible to use the government bureau workers as teachers only rather incidentally. It will permit the university and departmental authorities to cooperate in the division of labor of its workers. In many cases, in part owing to temperamental character, some workers should teach only; others should work only at research. In other cases the teacher or the experimenter should do only a minimum of service in another line than the one which is his or her major interest.

There will doubtless be found ways of getting away from the idea that a national university is primarily an agency to supplement state and other local universities. These institutions too long have held the high schools in line to serve the needs of the few who enter the colleges and universities, rather than the needs of the many who leave the high school and lower schools to enter practical life, thus confining vocational education to the professions, as if they had rights to be an aristocracy. The service to the public will be the large work of a national university, and service to the local universities will be only a very important incident.

For example, if the nation wants men trained for its service it will not want to confine itself to "master" graduates, especially if there are not a sufficient number presenting themselves, or if these are not of as good timber and promise as men chosen in part from other sources. For example, the State Department might desire to provide that men grown up in the consular and diplomatic service be given special lines of instruction to further prepare them for their work. The Department of Agriculture might need a winter school for its workers in farm demonstration, and for home extension teaching (it is now in great need of the finished products of such a school). Moreover, such bureaus as the Census, Agricultural Statistics, Fisheries, Indian Affairs and the Geodetic Survey, require men which, owing to the small need in any one state, are not trained in local institutions. Such a national university would properly take time by the forelock and prepare men for service in international or world governmental departments so as to be ready when world peace comes. Thus the International Institute of Agriculture at Rome will require men versed in world area crop statistics and other similar service—and no university has anticipated the demand for workers along these lines. The public requirement runs all the way in grade from secondary to graduate work preparation. Then there is the demand in the district for an undergraduate institution, such as would be provided if congress accede to the District's request for the privileges granted each state under the A. and M. land grant

College Act, which might properly be a part of a national university.

No greater boon has come to some of our universities, for example, those in Wisconsin, Illinois and Minnesota, which have secured means for such large service, than has come through college extension departments to serve those not resident in schools, to the mature farmer, mechanic and home maker. And the federal government already has in hand a stupendous work of this kind in its bureaus of farm demonstration and farm management. A national university, with its regency in part nominated by the great federated bodies of societies representing all phases of industry, home-making, education and art, might here have its greatest function. Mr. Bush-Brown's idea of a people's education foundation under the auspices of such a board would probably grow into a vastly greater work than the service to students resident in Washington.

Such a foundation could federate with all the private foundations, the national and state bureaus of education, the educational institutions of all states and the federated bodies supplying members to the regency for the most effective educational service. Under its guidance our educational machine (shown by the Carnegie Foundation and the General Education Board to be so disjointed and poorly coordinated) would be made vastly more efficient. Private fortunes would come to such a foundation, with its semipublic plan of control, and at the same time congress might find reason to provide liberally for its needs along all lines clearly meeting public demands.

It is manifest that this subject needs more discussion. The possibilities are so very large that wide consideration should be given that the more essential factors be brought boldly to the forefront. A move now to establish a university will make a new era in higher education. But one of its chief lines of work should be to foster vocational education for all the people in the lower schools. The better the lower schools are in giving efficiency to the producing classes, the more financial support and the more well-prepared students will come to all universities. But that is a small consideration beside the one of providing vocational education just below those rounds of the educational ladder from which the masses actually do and will leave to enter the work of producing and home-making. A board of regents in large part selected by and from the various classes of people, and a public educational foundation, supplied with means through which such a regency can reach and guide and build up the masses, will make not a Washington institution, but a national university; not a campus college but a university spread all over Uncle Sam's domain; and may become a beneficent world foundation to help take our freedom, our ideals and our opportunities to all the people in all the world.

WILLET M. HAYS

UNDERGRADUATE RESEARCH WORK IN MEDICAL SCHOOLS

IT has undoubtedly become true that a man with a real desire to gain all he can from his four years in the better type of American medical school can not be free very long from the idea that he must know something of the methods of investigation in medicine, or else graduate lacking an important element in his training. I am not referring to the man who feels he will favor the world with a cure for cancer as soon as his osteology course is finished, but to the steady well-prepared workers who make up the first third of every medical class. These men find themselves launched