Address.

WHAT POSITION SHALL UNIVERSITIES TAKE WITH REGARD TO INVESTIGATION?¹

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WHEN the honor was done me of asking me to take part in this discussion, my first thought, after the sensation of complacency at the compliment, was that there could hardly be a *discussion* where all held probably very nearly the same views, and that the great difficulty would be to say anything that would not be better said by another. Then as I began to think more carefully, I saw that the question was not, as I had at first imagined it to be, "What shall universities do to encourage those on their staffs to investigate?" It is far wider than that. It comprises a whole group of questions concerning which there may be every shade of opinion. So the more I thought, the more I admired the wisdom the committee had shown in their choice of a subject. Later still, it dawned upon me that surely it is a most satisfactory sign of progress that this Society should meet to discuss such a subject, with the conviction that, though without the shadow of a legal right to make claims, we are, nevertheless, sure of a sympathetic hearing from both universities and the public. First of all let us consider the place of investigation in education as a means of mental training, quite apart from any definite results. Surely this alone opens a wide field for one afternoon's ramble, in which there are diverging and recrossing paths enough to furnish us the surprises of unexpected partings and unlooked-for reunions.

I would here remark that perhaps some confusion is possible from different interpretations of the word, "investigation." According to some, it means simply practical work, object teaching, or, better still, object study. According to others, it is the search for something new. With regard to the value of the former we are all pretty well agreed. We do not need to be told what an advance it is over the old way of learning the statements of others concerning matters well within the sphere of observation. It may sometimes be carried too far; but in view of its great usefulness, we will not quarrel with a little abuse. With what is meant by the second interpretation the case is different. Excepting some singularly gifted natures, it does not, in my opinion, concern the student. The universal or even very general application of this method is the result of an extreme reaction. It rests on a fallacy. Because investigation is a good thing, and worthy of encouragement, which all must admit, it is assumed to be good for all, and an accepted method of education, which conclusion I cannot adopt. It is for the beginner to learn what is worth learning in his particular field first of all. It is not easy in these days to learn all that is worth learning even in a very restricted department. To start on investigation with this only half learned is a direct injury to the student, whom it turns to premature specialization. It is both foolish and cruel to exact investigation as a part of the regular training of every student, and very unjust to imply that those whose taste does not lie that way are mentally inferior to those who dabble

in research, no matter how ineffectively. It may be replied that, granting this, still it is a good and necessary training for those who in after life are to become investigators. I incline to dissent still; for the born investigator (and no other is worth much trouble) no more needs encouragement to investigate than the fish does to swim. I would, if anything, restrain him till his education has become broad and his mind mature. He will very quickly more than make up the lost time. Then let him have every encouragement.

As regards education I speak as a professor in a medical school, whose career has been so placed that he has seen this school develop into a department of a university. I feel that, in common with others, it has reached a point when it is in danger from the side of its scientific friends who mistake or will not learn the true purpose of a medical school. I so rarely find myself in complete accord with Huxley that I cannot forbear, though it is not for the first time, quoting his deliberate opinion that whoever adds one tittle that is unnecessary to medical education is guilty of a very grave offence. If this be true, as I firmly believe it is, we must look to it that the candidate for the degree of M.D. be not robbed of his time, none too long for learning medicine as an art, by specially conducted excursions into abstract science. It may be said, and said truly, that without such auxiliaries the education of the student wants something of the breadth which his should have who aspires to stand on the pinnacle, but this only emphasizes the fact, now becoming daily clearer, that there has grown up the need of what may be called advanced medicine. Some would have this strictly post-graduate, but it is probably wiser to have a difference in the course. On the one hand, there is the young man who aspires to be a conscientious, everyday practitioner of medicine, looking forward to a life of hard work among suffering humanity. Such a one is not to be refused the degree of an honored university, and told superciliously to go to the little school round the corner. Neither is he who, looking at the matter more as a scholar, desires through his studies to train himself to teach others and to widen the horizon of knowledge, to be told that we have no help to offer to one of his ideals. We must provide for both, but with what power I have I shall always protest against sacrificing the first to the second, though the latter is the one with whom my tastes incline me to sympathize.

To sum up thus far, I conclude that it is not the duty of universities to urge, still less to force, original investigation upon students. It should be at hand for those whose zeal is so great that it will take no denial.

The next question is what universities should do for research in the community at large. Are more prizes and scholarships to be offered? As to prizes I should hesitate to say yes. It is not well that they should be too common; but of scholarships for deserving men we can hardly have too many. It is most desirable that the universities should award them. They cannot, indeed, give the funds, but these being provided, committees from the universities should give their time, care and experience to their proper administration. This is a most beneficent and dignified attitude for a university, midway between the generous donor and the deserving student, to see that the generosity of the former is neither neglected nor abused.

¹ Address opening the discussion at the Annual Meeting of the American Society of Naturalists and Affiliated Societies, December 29, 1899.

The next, and last, aspect of the question that I shall consider is, What shall a university do for the support and encouragement of investigators within its walls? The primary function, in my opinion, of a professor is to teach; but with certain exceptions of rare merit, it is necessary for his reputation and influence that he should do original work. The first duty of the university to him is that he should not be overburdened with teaching. The next problem is, how the expenses of his work are to be met. These must vary with the department. For some lines of research distant expeditions are requisite, necessarily so costly that they can hardly be provided for otherwise than by national or private munificence. But putting these aside, and speaking more particularly of biological and morphological work, the problem reduces itself to this: what help shall the university give to the investigator, (1) in the matter of providing the material, namely, the subject matter for the study; (2) the machinery and reagents for the work; (3) the means of illustrating it, and finally, of publishing the paper. The last need is not urgent on account of the great number of journals of all kinds, but it exists in isolated cases. Till comparatively recently the position of universities has been much like that of the Pickwick Club, which when sending its honored founder and his companions on their travels saw no objection to every member paying his own bills. But professors for the most part suffer from "that perpetual lack of pence which vexes public men," and those who are not yet professors are, of course, vexed the more. Is it fair that a serious tax ever increasing in direct ratio to his merit should be laid on the investigator, especially as the university profits in no small degree by his success? I am sure we shall all agree it is not. But then difficulties present themselves as to how this help is to be given and distributed, assuming that the university admits the claim. Who are to be the chief beneficiaries? The most distinguished or the most needy? The oldest because of his years? Or the youngest because of his youth? And again, is it just that the university should furnish large sums for bringing out papers of unknown merit? It seems to me that the most feasible way, if the money can be procured, is to place a sum in the hands of the professor at the head of each scientific department, to be spent for the good of that department, including publication, according to his discretion, or his lack of it. Should the latter be painfully apparent, the resulting unpopularity will surely be irresistible, and thus there will be a check on a system which may at first seem too arbitrary.

Original Articles.

EPISTAXIS.¹

BY FREDERIC C. COBB, M.D., BOSTON.

THE subject of this paper is too much within the experience of all physicians to allow me to hope that I can present many points of novelty and interest not already known to you all. Yet the causes and treatment of this affection are not uniformly considered by the general practitioner and specialist, and each may learn from the other in his treatment of the disease.

¹ Read at a meeting of the Boston Society for Medical Improvement, November 6, 1899.

Bleeding from the nose, to quote from Thomas Watson, may be a warning, a remedy, or a disease. The first two statements, that it is a warning and a remedy, used, I think, to be the idea of the older practitioners, when blood letting, either natural or artificial, was regarded as a panacea for all things. The last part of Watson's statement, that it is a disease, has obtained much more of late years, and is a natural reaction against the earlier practice of blood letting already spoken of. It should in reality be called a symptom, it seems to me, either of some local lesion in the nose, or of some general disease elsewhere. It may be said that cases of nose-bleed are sometimes idiopathic, but as our knowledge of pathology grows, we find fewer instances of idiopathic and more of causative elements previously overlooked.

The causes of nose-bleed may be divided into local and general. Perhaps the commonest local cause of epistaxis is deformity of the nasal septum. The mechanism of the bleeding in such cases is simple. A sharp anterior deviation of the nasal cartilage throws it broadside to the air current, and particles of dust and grit lodge upon the delicate mucous membrane, causing it to become inflamed and covered with a coating of crusts and scabs. These soon become such an annoyance to the patient that he scratches the surface with his finger nail or handkerchief in order to rid himself of the discomfort, thus causing a small ulceration which reaches some time later a blood-vessel and hemorrhage results.

Examination of the nostril shows the vessels on the anterior part of the septum dilated, and if the bleeding point be found, it is within reach of the finger nail of the patient's hand. Ulceration may, however, occur without the use of the finger nail where the surface of the septum is sufficiently inflamed. Epistaxis may occur further back on the septum, but this is more uncommon, and is, it seems to me, more apt to be a symptom of some graver disease. Of the more important local lesions causing epistaxis, fracture is perhaps the most common, and this may occur at the junction of the septum and cartilage, or from the driving in of the nasal bones. Fracture or dislocation of the cartilage is the common cause of bleeding in boxing. Of all lesions the new growths of the nose cause the most severe hemorrhage, especially the angiomas and angiosarcomata. Death has resulted from the former in cases reported by Panas and Richet, but fortunately such cases are rare. In my experience few non-malignant tumors cause bleeding except the angiomas, and even in the malignant growths, except those mentioned, hemorrhage of any severity is unusual. Foreign bodies in the nose seldom cause bleeding, although allowed to remain in the nostril for years. Of the constitutional diseases leading to epistaxis we have first plethora, a somewhat vague expression, and anemia. Epistaxis from plethora I have never seen, although it seems too well known to be doubted. Epistaxis from anemia must be very infrequent in the absence of any local lesions, and in both plethora and anemia one would require proof that no local lesion had existed. If we consider the hemorrhagic diathesis is it not fair to assume that some local break in continuity must exist, as it does in other parts of the body? This of course need be but slight in the nose, as, for instance, the local removal of crusts and scabs from the anterior nares. When we consider that it is only of late years that the nose has been carefully examined, we can easily suppose that slight nasal lesions have often been over-