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THE UNIVERSITY AND THE MEDICAL PROFESSION[1]

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THE university has always been the best expression of the intelligence of a community. The university first appeared in ancient Greece, later became highly developed in Alexandria, survived the upheavals of the Dark Ages, and under Moslem influence reappeared at Salerno in 1120, where it proved to be the first step toward the revival of learning and the Renaissance, while in later centuries it has been the chief agent in the advance of knowledge. There must be some very substantial qualities in an institution which has survived all these vicissitudes, and it is worth while inquiring into the nature of the qualities. What is a university and what is the university idea?

[1] Anniversary address, New York Academy of Medicine, November 5, 1931. The historical basis of many of the statements in this address has been omitted from the present copy. The full text may be found in the Bulletin of the Academy, January, 1932.

The university idea involves the cooperative intellectual and moral effort to collect, disseminate and apply knowledge for man's needs.

Cooperation between the various branches of knowledge is perhaps the first essential of a university and becomes more necessary as the complexity of problems increases. Most of the great advances in medicine have resulted from the reflection of new knowledge in one science upon the problems of another. In order to have cooperation, the men in a university must have the social instinct and understand the significance of the social relation. Here, at the outset, is a very difficult and complex problem, how to secure voluntary united effort among scholars, without interfering with individual effort and ambition. It can not be secured by mandate, but it may be conserved by deliberate efforts of university organ-

izers. It must be based on mutual respect, character and community interest. Experience shows that institutional pride, a sense of ownership in one's own products and partnership in the achievements of one's colleagues, all directed toward common ends, have been the most efficient factors in securing cooperation. A sense of loyalty and intellectual honesty belongs to cooperative scholarship. There are many instances where the influence of a commanding personality in a university, an intellectual or official leader, himself exemplifying the desired qualities, has secured the highest type of loyalty and efficiency. It has been said that every great institution is but the shadow of some man. It is the belief of many that in the choice of a university faculty, one will go further by choosing men rather than experts.

Thus, the very first problem of the university encounters that most fundamental question of morals. One must therefore stress the moral aspect of university organization to the fullest limit. In the advance of knowledge, the end must not justify the means, for if there are not moral standards in a university where are we to find them? The church preaches them, the law attempts to compel them, business often flouts them, but the public conscience expects the exhibition of them by men associated in a university. The moral law applies to the officers of a university quite as much as to the active workers. I doubt if any university can go far under the leadership of a man who has only a loose sense of right and wrong. One must practise the cardinal virtues before attempting to cultivate genius.

In order to preserve loyalty and morals in a university, the organization must be designed wisely for that purpose. The earliest schools solved the difficulty by having very little organization and that in the hands of students and teachers. It was an ideal method, and worked well, but is too cumbersome for modern conditions. Other schools were supported and directed partly by the state and some were chiefly products of the church. History shows rather clearly that the church has never been very successful in conducting universities, especially medical schools. One may well wonder why the medicine of the monks was not more productive, since they should have been well provided with leisure, loyalty and morals, but we have modern instances of failure by the church in the same field. In modern times the state has appeared at its best in university affairs, especially in Germany and France, by providing funds, and creating a group of experts in university organization, who generally wisely kept their hands off the internal workings of the university.

For many centuries and after many digressions, the opinion has strengthened that the essential policies of a university should be determined by the scholars themselves, or through their agents, while non-professional officers should deal only with finances. It is a question of deciding complex and technical problems by men who have first-hand knowledge. The best results have followed this policy, as with the great German universities of the last century.

When scholars have been chosen for personal and moral qualifications, it can not fail to work well. If they are not so chosen, the whole structure must be faulty and no scheme of organization will correct the fault.

Combined direction by a body composed of laymen and scholars has long been active in the University of London, with excellent results, but the questions submitted to this body are of a general nature. This body actually inspects the workings of various medical schools under the University of London, and adjusts grants to the schools according to its best judgment, but for the past forty years it has taken no part in the choice of the faculty. There have been no conflicts in the working of this organization, and it is needless to say that the men composing the body possess high moral and personal qualities and understand the university idea.

In America there is a notable lack of uniformity in the executive management of university medical schools and frequently a failure to recognize the best university standards. Experience shows that most of the minor and some major troubles arise just at this point, where in the interests of executive efficiency valuable traditions are neglected and an important source of loyalty is sacrificed. Owing to the executive indisposition of scholars, the president and his appointee, the dean, have sometimes been led to exercise plenary powers and even to assume professional and spiritual leadership. Under some conditions such expedients may have been necessary, yet an energetic president and an aggressive dean, subordinating the faculty, are better suited to a business organization than to a university. The deanship implies maturity and the qualities of leadership, and these are best judged by scholars, in whose hands the nomination of dean should rest. A president possessing broad vision and a tactful dean cordially cooperating with the faculty furnish ideal conditions, and unless these are fully met many believe that the office of the dean should be abolished and his executive function filled by a lay officer. The university idea is comparatively new to most American medical schools, while practical problems have been very numerous, and to these facts we may attribute our failure to reach a real university standard in organization.

Universities have traditions to which they cling tenaciously and which are often very valuable possessions, but may become serious handicaps. These tra-

ditions are the result of long experience and careful thought by leaders, past and present, and they generally dominate the organization and activities of the schools. They make character and quality in an institution. They enable the school to weather storms of criticism and the assaults of reformers. They conserve the self-confidence and loyalty of the scholars and students, and they offer a splendid example of mental and moral equilibrium to other governmental and social institutions. They tell the iconoclast that there are immutable standards of right and wrong, that past progress is substantial and the future full of promise. Traditions are strongly entrenched in Germany, France and England, where they are hedged about by complex barriers, and it is so difficult to change them that few attempts are made to do so. Rigid adherence to theory and prominence of clinical study are characteristic of French schools, thoroughness and originality of the Germans, and solidity and critical ability of the English. The subtle influence of tradition is best seen at Oxford and Cambridge, where the English youth acquires a stability and refinement of character hardly equalled elsewhere. Most observers find the source in the constant contact of young men with ancient halls, sensible of influence, still potent, of past masters and disciplined in the old well-tried methods of thought, study and conduct. Yet the efficiency expert would tear down the old mouldy crumbling halls, erect modern hygienic buildings, throw out the useless readers, abolish the ancient and superfluous Regius professorship in medicine, reorganize the cumbersome government, abolish old ceremonies to save time, and generally ruin the whole splendid structure. American universities also are old enough to have traditions and American scholars cling to them firmly, but we are not so sure of their value. We permit changes and experiments, small and great, on slight provocation, and rejoice to see the survival of the good after periods of chaos. The great danger of traditions is scholasticism, but history shows that the taint of scholasticism survives reform and can only be reached by intelligent appeal to the morality of scholars.

Among the time-honored traditions of universities are nomination of appointees by one's peers and life tenure of office for established scholarship. The actual power of appointment may well rest in other hands. Here lies the mainspring of loyalty and morality. These standards assure that appointments will be made on merit, as judged by personality and a record of achievement. Without them advancement may be sought by salesmanship and political and social influence, and made in accordance with the swings of fashion by any one who happens to be in authority. In France, England and Germany the available candidates have passed through a long series of qualifications by which they advance step by step to the higher positions, a method which encourages consistent work and eliminates the adventurer. In England, where the method is followed rigidly, some men may be advanced on length of service without corresponding ability, but prominent British educators assert that the advantages even of this system far outweigh its faults. The demotion of a professor in Germany would be regarded as a calamity subject to searching investigation, and such an event has virtually been unknown. While age is an uncertain standard, retirement at 65 or 70 years is generally a wise provision.

While the American universities generally aim at the highest standards there is a lack of the rigid barriers and traditional safeguards maintained in the older European universities. It is not surprising, therefore, that there have been occasional violations of established precedent, which it is best to regard as incidental to our unsettled conditions, to the rapid growth of university faculties and to the necessity of frequent changes. It is not wise to minimize their importance, because they lessen the loyalty and morality of scholars, and they tend to sharpen the political sense of young doctors who are entering a university career. Human nature may not change much, but conditions do. Forty years ago I never knew of any laboratory worker whose work was definitely influenced by political considerations, but to-day the younger men discuss with the utmost frankness the political significance of their researches, utterances and contacts. The responsibility for these changes is very great and unless they are checked American medical scholarship will suffer lasting harm. It is not difficult to trace these changes to unfortunate practices which have survived recent reforms or have even resulted from them.

If contracts made by one administration are overlooked by a succeeding administration, one must infer that precedent is not well established in that school.

If the leading members of a faculty are forced out for the benefit of the favored healer of a high political official, one must conclude that the basis of such a university is very unstable.

If all the higher positions in a faculty are declared vacant in order to make way for a cherished reform, one must ask whether the end justifies the means. The violent dislocation of established teaching staffs is an exceedingly drastic measure which many a man with fine sensibilities would hesitate to advise or undertake. Even Maria Theresa hesitated at such a step.

If authority is given to one man to choose an entire new faculty on his own knowledge, aided by those whom he chose informally to consult, the question

immediately arises: Why depart so widely from safe precedent and why not divide the authority among those who must later accept official responsibility?

If the policies of university medical schools are wisely based on traditions and are safely determined only by responsible experts with long experience, is it not clear that interested laymen run great risk of doing harm when they undertake to direct or control these policies?

To our European colleagues these violations of university methods in America appear to be inexplicable. Many have assured me that they can not exist in Germany, France or England, and they regard them as a grave danger to university prestige in America. Thus, if established principles are neglected, even in good hands, and in spite of good intentions, expediency beclouds judgment, opportunity outrides tradition and ambitions replace ideals.

The foregoing incidents lead directly to another paramount factor in American medical education, the influence of organized philanthropy. Every one recognizes that the great foundations have been directed with wisdom, mainly by scholars of high repute, and that their policies have been based on the investigations and opinions of experts in many fields. Probably no new American activity has received more thorough scrutiny and deliberation. The British Commission on Education has for centuries conducted studies on educational problems, but in America there was no such group of experts on whom to rely in the solution of new problems. In creating such a group the foundations have done not the least of their services. It is not surprising that the foundations have been accessible to innovations, earnestly pressed by their proponents, but not fully understood or approved by the great body of scholars. The project of full-time clinical service is one of these innovations.

University men can offer no objection to the trial of this experiment, but they have regretted some of the conditions under which the experiments have been conducted. We trust that the results of the trial will be viewed with scientific courage.

The central idea of providing young men with opportunities for medical study free from financial worry was excellent and was wisely met by offering substantial salaries for this purpose. It was an entirely different matter to prevent university professors from overcharging their patients and neglecting their duties, for which the proper remedy was dismissal or moral suasion. The error was made of attempting to accomplish both these worthy objects by the same remedy and it has led to serious changes in the whole organization of medical teaching, some of which are not working well.

The first major consequence was the super-clinic with its enormous budget, calling for large sums of money which many think could be used better in safer projects. The most urgent need of medical education was larger support for the medical sciences, to enable professors and their mature assistants to live properly on their salaries. It was soon found that one had to pay the market price for suitable heads of the clinical departments, and when salaries comparable to those of bank presidents were added to the lure of scientific opportunities, the scheme lost much of its idealistic color. The old-fashioned laboratory man, never having sat at the seat of custom, did not begrudge the liberal pay of his more fortunate colleagues, but he was startled by the assumption that competent chemists, bacteriologists and pathologists could be found to work under the clinical leader, and he became alarmed to find his own traditional field of work dwarfed by his expansive neighbor. Thus far the only feature of the super-clinic which has fully materialized is the budget.

The full-time system has placed a premium on research and a discount on clinical efficiency. The responsible heads of clinical departments should be masters of their subjects, but when young men who have merely performed a creditable piece of research are given large clinical responsibilities they are compelled to learn their business at the expense of their patients. But clinical medicine can only be mastered by long years of hard experience. Thus one of the worst faults of the old proprietary school system was unconsciously reenacted. Recently more mature men have been chosen to head the clinical departments, but the choice has been determined mainly on achievements in research, and not on ability to deliver service of the highest type.

Hard times are now about to add their salutary complications, and the immediate future of full-time clinical service faces new trials. It is to be hoped that the effort to float the scheme in times of stress does not lead to further dwarfing of other activities. Certainly the plan should not be forced upon institutions, and the proponents would do well to confine the experiments to resources under their immediate control. Since the activities of the foundations exert a profound effect upon medical education, university men look to them for the finest appreciation of the university spirit.

II

The university is a place for the collection of knowledge, and it is an ancient tradition that for this purpose a great library is essential.

In the Dark Ages medicine was mainly concerned with disputes over ancient and recent texts. The art of printing let loose a flood of revisions, writings and debates, which reveal an outstanding characteristic

of the medical mind. To-day an enormous volume of literature of every description from a multitude of sources crowds the ancient manuscripts into secure vaults and submerges the real progress of science. Surely a consuming fervor of debate animates the medical profession, perhaps above all others. Yet, there is a fascination about the world of letters, unrestrained by harsh facts, which appeals to every one, and inclines one to excuse the Dark Ages for their scholasticism and the modern age for its colossal libraries.

America has always indulged a feverish passion for collecting books, and we have emptied many a foreign stack and cellar to fill our shelves. The outstanding features of medical literature to-day are volume, diversity, repetition, classification, practicality, accessibility, efficiency, not unmixed with fine literary effort and finish, but brevity and directness are lost arts. Americans are the most voluminous readers and publishers in the world. The library of the New York Academy of Medicine receives annually 1,965 journals, of which 679 are American, representing all branches of medicine and its collateral sciences. We have many great medical libraries, none exceeding in scope, usefulness and value the splendid collection of this Academy.

Yet, the art of printing was not an unmixed blessing. In may fields it has become almost as difficult to get the truth from books as to go out and discover it anew from Nature. Tons of printed pages come like an ocean fog from innumerable society transactions, great numbers of papers compiled for trivial occasions, extemporaneous remarks from all classes of speakers, hastily prepared orations, interminable case reports, undigested notebooks, etc., none of which are allowed to die, owing to the ever-present stenographer, stenotype and pestiferous dictograph. The worst offender is the record-breaking investigator in the medical sciences, who serves up an endless supply of scientific tidbits. There is a well-known racial tendency to leave nothing unsaid, and an equally well-known national habit of encyclopedic display of knowledge without thought, both of which crush the honest reader. The Swiss physiologist of the eighteenth century, von Haller, was an infant prodigy, who produced 13,000 scientific papers and gave our most esteemed branch of medical science an impulse from which it is still vibrating. This is a record, and our modern contenders must not attempt to break the record. On the contrary the physician should feel a sense of responsibility every time he takes up the pen, realizing that he is about to add permanently to the mass of literature. It is now generally appreciated that the number of papers produced by an author is usually in inverse ratio to their value.

Yet, there are many gold nuggets in the sands. Scholarly text-books, authoritative systems, erudite texts and crisp announcements were never so numerous. World literature was never so easily accessible or so eagerly sought, and the written word was never a greater power in the progress and continuity of medicine.

On another side, I would enter a plea for greater appreciation and use of the scholar with broad experience and wide erudition as an efficient source of knowledge. There is a subtle power in the spoken word always missing in print. If it were not so we should abandon teachers and use only books. A half hour with Sir William Osler was worth a month in the Bodleian Library. As a matter of fact, the great bulk of effective knowledge in the world comes from conversation and deliberation with those who know. The value of such men in a university should be more formally recognized.

III

Research now occupies the center of the stage in the program of most university medical schools. Human ingenuity has been strained and material resources taxed to elicit new facts about disease. The results are most impressive, and in no other age has there been such a volume of new information about all phases of medical problems. One may perhaps also say that in no other period has available knowledge been so usefully applied, for much able effort has been directed to the dissemination of knowledge and its application at the bedside. A fine spirit of inquiry and investigation pervades the medical schools, hospitals and societies, elevates the standards of practice and curbs destructive criticism.

It is necessary to distinguish between mere observation and research, and by so doing we at once exclude the great bulk of so-called original investigation. Interesting isolated case reports, peculiar variations in anatomical findings, improvements in chemical technics, isolated findings of new chemical and physical variations in pathological processes, uninterpreted results of experiments, may educate the writer, but do not constitute investigation. True research involves the attack upon a definite problem, the setting up of an hypothesis and the demonstration of the truth of the hypothesis by adequate methods and with convincing evidence. The discovery of insulin is an example of real research and original investigation. One hastens to add that observation is the main means of discovery of medical problems, and consecutive observation has in the past furnished the solution of many. It was almost the sole weapon of the old clinicians. Research in the literature was the main occupation of medieval physicians who thumbed the medical canons for centuries without results, and it still remains a favorite pastime. The modern scholastic

loves to rediscover old facts by new methods and claims that we are now engaged in quantitative estimations of the phenomena of disease. This dictum assumes that the facts are already known. There is a point in the course of most investigations where the aid of experiment is necessary, but pure experimental research on man-made problems is overdone and its results, unless closely controlled and applied, have been disappointing. This is the antithesis of the old scholasticism and shares its faults.

In recent decades the universities have lost some of their dominance in research, owing to the increasing complexity of problems and the necessity of providing men and materials on a large scale. Throughout the world there are many research institutions, private and governmental, which are contributing a very large share of medical progress, and the conditions in many of them are rather more fortunate than in most universities. Some very important medical problems are now largely in the hands of industrial concerns which handle them with fine recognition of the university spirit. Yet pure research tends to scholasticism, and industrial research has relations with commercialism, so that both these movements are regarded with anxiety by most university men who would prefer to see the universities retain a dominant position in medical research.

I mention these few phases in order to point out that knowledge makes progress in exceedingly varied and devious ways. The flower of research will not flourish in the highways and byways. Therefore any attempt to direct or coerce research according to the ideas of commissions and organizations is probably unsound. Complete freedom of thought and action are essential conditions, for it is generally the nonconformist who makes progress.

The university is a place for the dissemination of knowledge, which is equally important with its collection. Teaching in all its phases is probably the most constructive of human activities, the most effective factor in binding individuals in the social state, and the chief agent in maintaining the continuity of knowledge from age to age. The facilities for medical teaching have had revolutionary advances in the last half century, and the results are excellent. Yet, the art of teaching remains the same as ever. Its essence consists in personal contact, the spoken word, a fitting personality and the instinct of the helping hand. Here the university spirit finds some of its best expression. To cultivate the faculties of the immature mind, to give opportunity under direction and to see results, is to add something to the world which would not otherwise exist and is the chief reward of the teacher. Medical history abounds in the examples of the influence of the great teacher, extending often over several generations. Such men have been loyal friends of their pupils, and have never ceased to exert their influence to advance their associates in every proper way. They have had the ambition to produce men superior to themselves. Over against the helping hand is the idea of the big brother. Some teachers assert that they address themselves only to the best men in the class and neglect the others. Conscious of superiority, they clamp down their own ideas and methods on the brilliant student, they see their own reflection in his success, which they are very apt to appropriate, they love the ease of working with capable minds, but they contribute little that would not otherwise exist. The big brother idea has many ramifications in and out of university life, but it is contrary to the university spirit. It is a fortunate school that numbers in its staff many self-effacing, hard-working, earnest men who take pride and pleasure in seeing creative work throughout the ranks of their students and whose departments are free from dogmatism, egotism and self-assertion. Yet, I have almost never seen a department head deliberately chosen for these rare qualities. The premium on brilliancy and so-called productivity generally singles out men of quite a different type.

The study of medicine has a very high cultural value, probably exceeding that of any other department of learning. The intrinsic value of a knowledge of medical science and clinical medicine is very great, and this is the reason why it is sought by thousands of young men and women quite apart from the earning capacity and privileges which the doctorate in medicine confers. Acquaintance with the structure and functions of the human body, of the causes, mode of origin, course and control of disease, discipline in scientific modes of thought, respect for authority, consciousness of one's own limitations, are some of the qualities which generally make a knowledge of medicine conspicuous in its possessor. Physicians, who do not practice medicine have often exerted a powerful influence for good in public affairs, especially in Germany, and that influence is greatly needed with the growing complexity of the problems of modern life. Yet, modern university medical schools deny this knowledge to hundreds of applicants and thereby lose a vast opportunity to advance the standard of general intelligence and extend the influence of the university ideal. Compelling excuses are believed to exist in the difficulty of supplying adequate facilities of the best type, but the responsibility can hardly be dismissed in this manner.

There are to-day 13,000 fully qualified applicants for medical instruction in this country, but only 7,000 places available. Thus, the institution designed to supply a need becomes the chief obstacle in the way of the satisfaction of that need. Descartes has said, "If there is any possible means of increasing the

wisdom and ability of mankind, it must be sought in medicine."

Fortunately, the dissemination of medical knowledge does not end with the university, which rather naively admits that it only lays a foundation. Some medical educators aim to teach as little of practical nature as possible, in which ambition they are often remarkably successful. Postgraduate education looms too large for the present-day university program, but the task is taken up by innumerable other agencies. Local, social and scientific, urban, interurban, county, state, national and international societies, journals and conferences form a vast and effective scheme for the interchange, dissemination, advancement and employment of medical knowledge. We may at least claim that in the workings of this scheme the influence of university men predominates.

IV

Finally, we come to that fundamental question, the place of utility in the conception of the university. I have ventured to emphasize, perhaps overemphasize, the idea of utility for man's needs as a guiding principle in the university program. This proposition may appear self-evident to many, but the history of medicine shows that it has been contested and often overridden at many periods, and it lacks general acceptance at the present day. During the decay of medicine and the reign of the medical gospels in the Dark Ages, it was wholly discarded and medical knowledge was sought in parchments and for its own sake. At this very time the influence which kept medicine alive was the enormous and ever-present task of caring for the sick. The growth and achievements of many knightly orders consecrated to the relief of the sick throw a splendid light over those melancholy centuries. For a very long period hospital construction, nursing and hygiene made remarkable progress, while medical science stood still. For a longer period the methods of teaching medicine were inherited ends in themselves, so cumbersome in the exclusive use of Latin, as to thwart the object that should have been in view. In the Renaissance it must be suspected that the rivalry between competing universities, some of which drew great numbers of paying students, perpetuated dogma, artificiality and institutional reputations, over utility and progress. In the seventeenth century the large rewards obtained by many successful practitioners made dress, manner and reputation the chief ends of the medical man.

We may amuse ourselves reflecting over the woeful deficiencies of former generations, but it is not difficult to detect traces of these same faults in present-day institutions, and the fact that they are mostly due to neglect of a sound principle of utility. It is a widespread doctrine that science in a medical school should be pursued for science' sake, and hence we see the fundamental sciences taught mostly by men without medical training or interests, who often deliberately neglect the medical aspects of their subject. Most of these men realize that they would be better and happier in their work if they had had a medical education. Who can understand the liver if he has not seen it in acute yellow atrophy? Who can know the cell if he has not followed its cancerous riot? There was a time when it was difficult to secure physicians competent to teach the preclinical medical sciences, but that time should have passed.

The great expansion of experimental medicine often leading to the pursuit of random topics and questions distantly related to medicine, may be a necessary phase of the growth of the scientific spirit, but it distracts attention and resources from the real, urgent and often solvable problems of medicine.

The close affiliation or union of general and special hospitals with university medical schools and the introduction of the university spirit into the life of hospitals is the most significant advance made in medical organization in this century. It mitigates the rigid scientific spirit, directs it to the practical problems presented by sick patients, and encourages the study of these problems under the best conditions. There is good reason to believe that the progress of clinical medicine in the immediate future will depend largely on the more intelligent interpretation and use of data secured in the laboratory. The laboratory trained clinician has many advantages, but it is difficult to shine both at the bedside and in the laboratory, and many fear that pure clinical research and the art of medicine are unwisely neglected by the praiseworthy attempt to cover both fields. Unless a safe principle of utility is adopted, the laboratory clinician may become absorbed in the rediscovery of old facts by new methods and the easy pursuit of interesting but secondary phenomena of disease. The universe is full of interesting facts, as numerous as sand grains on the ocean beach, but not all are important, and the wise investigator and physician, imbued with a sound university spirit, will choose carefully and avoid being lost in the sea of knowledge. All these tendencies and many others form the modern scholasticism. We have seen its deadening effect on the medicine of the past, and we should defend against it by intelligent adherence to the principle of utility. "All knowledge attains its ethical value and its human significance only by the human sense with which it is employed" (Nothnagel).

Modern university medical schools, especially the American, are singularly slow to realize the enormous growth of many medical specialties, the opportunities for service, the dependence of progress on experience and the necessity of providing adequate facilities for

such normal and inevitable growth. The institute idea seems to be new to many who find themselves directing university development. Yet, institutes of pharmacology began to appear in the seventeenth century, and institutes have figured prominently in the growth of many branches of medicine ever since. They are particularly necessary at the present stage of medical progress, especially as viewed from the utilitarian standard.

Yet two New York schools have recently absorbed famous institutes of obstetrics, founded by men of vision, with long and excellent records in education and service. They are now merged with gynecology, in accordance with a policy recently adopted by many schools. Only experience can determine whether obstetrics will profit by these changes and whether these institutions will thereby be able to improve on their past records. In the meantime many regret the passing of these old-time ornaments of New York medicine, and they hope that New York has not lost the opportunity of duplicating some of the famous maternity hospitals of the world.

Not one of the great university medical schools has taken a vigorous initiative in the modern institute movement for the control of tuberculosis or cancer, by the creation of institutes for service and research in these paramount interests of humanity. All the medical schools do a little orthopedic surgery, but the progress of orthopedics was long since consigned to special hospitals and institutes devoted exclusively to this field. The same situation holds in pediatrics and in contagious diseases.

Dental institutes are making progress slowly but surely, but legal medicine knocks in vain at the university back door. On the other hand, the McCormick Institute for Infectious Diseases at Chicago, the School of Hygiene at Hopkins, the Institute of Human Relations at Yale and the department of psychiatry of the New York Hospital-Cornell Association are fine expressions of the institute idea and ominous signs of the size to which the arms of university medicine must grow if it is to keep pace with progress. Yet, in general, it must be admitted that the growth of modern medicine in recognition of the principle of utility, the demand for service and the dependence of progress on service have outstripped the vision of the organizers of university medical schools. Unless these demands are met, the real progress of medicine will pass out of the hands of the universities, as it has already partly done in some fields. These schools will then be free to devote their vast resources to the pursuit of medical science as a branch of biology and to experiments in medical education. This is the essence of scholasticism.

The university medical school has never known quite how to handle the question of the extramural activities of its scholars. In general it discountenances such activities without much concern about their great educational value. It leaves the busy world to take care of itself. It feels little responsibility for the way medicine is practised.

Into this breach medical men with the university spirit have thrown themselves with energy and intelligence. The results have been excellent because they adopted the principle of utility. Organizations have been formed devoted to the advance and dissemination of the higher branches of medical knowledge, to postgraduate instruction, to the collection of great libraries, to the organization and elevation of hospitals, to the interests of the nursing profession, to problems of public hygiene, to the policies of governments in medical affairs, and in fact to all the practical relations of medicine in social life. These bodies have long been a powerful influence for good in their communities, and they have generally been animated by a fine conception of the university spirit. Such a body is the Royal College of Physicians of England, originated in 1518 and gradually reaching its present form and influence after centuries of service in the field of organized medicine. The Royal Society of London was founded in 1660. Similar societies followed in Naples, Dublin, Berlin and Paris, all devoted to the advancement of science and its practical applications. To-day every great city supports one or more societies engaged in the extension of university medicine in its community.

There was thus ancient precedent for the formation of the New York Academy of Medicine in 1847, but there are few if any examples of the remarkable growth of its activities and of the influence it exerts in its community. Its great library elevates the standard of medical knowledge in this and other neighboring cities. A long list of affiliated societies prosper under its patronage. With rare vision, it has discerned and embraced many opportunities to advance and extend the application of medical knowledge. It is concerned with the standards of medical practice and morals, censors medical news, protects the public against errors and abuses, cooperates with medical schools, influences legislation and, adopting the principle of utility, interests itself in all that interests medicine and the public. It is one of the most efficient of all agencies in extending the influence of medicine into a broad and extremely practical field.

V

And now, what does this review of the history and present position of the university reveal? Does it not show that the university has been at all possible times the mainspring of intellectual and scientific progress? It may have declined with the decay of

nations, but it has always taken the first step toward the revival of learning and the advance of knowledge. Hence it has survived religions, is more powerful than government and has a better record than the church. In the university medicine has always occupied a commanding position because it deals with a primal necessity, self-preservation. At times medicine has been almost the sole source of inspiration toward learning and intellectual effort. Medicine directed by the university idea has accomplished great things in the control of disease and the revelation of man's physical nature, but its main task still lies before it. We may not wisely conceive of a world without physical evil. It would hardly be human. There is no such danger. Yet there are voices acclaiming the arrival of the day when medicine, having virtually conquered the old diseases, may now pass on to birth control, eugenics and the superman—dreams, possible to him who ignores the stern realities of the sick room and the dead house. Preventive medicine has done much, but the era of clinical efficiency in curative medicine is still to dawn.

The world looks hopefully to the university and its medical school and to educated physicians to go forward with the task of controlling disease and carry it as far as may be. We shall therefore jealously guard the best traditions of the university ideal. We shall see to it that attested medical knowledge is carried into every human activity and relation where it may be of service in the control of disease and the elevation of the standard of intelligence, and by cooperative intellectual and moral endeavor, we hope to justify mankind's great adventure in altruistic effort, the university.

ROOSEVELT, THE NATURALIST[1]

By Dr. C. HART MERRIAM

WASHINGTON, D. C.

WHEN I was a boy there was a branch of knowledge called natural history. And there were men called naturalists—men whose main object in life was the study of our native animals. Of them Spencer F. Baird, for many years secretary of the Smithsonian Institution, was by far the most eminent, most influential and most helpful.

But Baird was by no means the first to interest himself in natural history. Three hundred years before his time some of the Pilgrims to New England and Virginia gave entertaining accounts of the animals of their new home, and a century or more afterward several Englishmen who had lived many years in America, notably Mark Catesby, Alexander Wilson and Thomas Nuttall, gave the world valuable books on the fauna and flora of our Eastern and Southern States.

Still more important from the technical standpoint were European naturalists, who from the time of Linnaeus to that of Cuvier, published technical works on the animals of the world. These contained descriptions of American animals based on specimens and information from "overseas."[2]

It was not long, however, before American-born men of letters began to interest themselves in the fauna of our country. Outstanding among these were the eminent ornithologists, John James Audubon and his co-worker Dr. John Bachman, whose monumental works on birds and mammals with their splendid colored plates have never been surpassed; and Dr. John J. Godman, whose "American Natural History" was in such demand that several editions were printed. Others worthy of mention were Dr. Benjamin Smith Barton, Governor DeWitt C. Clintion, James E. DeKay, Dr. Richard Harlan and Edward Hitchcock.

The distinguished Swiss naturalist, Louis Agassiz, who came to America in 1846, was made professor of zoology at Harvard in 1848. His stimulating influence can hardly be overestimated. Among his many students at Harvard and Penikese were Newberry, Verrill, Morse, Packard, Scudder, Alexander Agassiz, Hyatt, Shaler, Wilder, Garman, Allen, Brooks, Walcott, Fewkes and Jordan—men whose names stand as monuments along the highway to knowledge of animal life.

Another naturalist of the period was Sanborn Tenney, professor of zoology at both Vassar and Williams Colleges. Tenney, though not a technical worker, published a "Manual of Zoology," which, in spite of its shortcomings and crude illustrations, was widely used and proved a great help to hundreds of

[1] Address made on the occasion of the presentation of the Roosevelt Distinguished Service Medal in Natural History to Dr. C. Hart Merriam. The presentation address by the secretary, Hermann Hagedorn, was as follows: "For distinguished service in the field of natural history, Mr. President, I have the honor to present the name of one who for over sixty years has studied the wild life of earth and sea and air. Founder and for a quarter century director of the United States Biological Survey; the leader, among American scientists, in the field of mammalogy; a profound scholar not only in his own domain but in the fields of plant life and ornithology, of faunal and physical geography, and of the language, customs and racial origins of the Indians of the Pacific Coast; a tireless investigator and expounder, who, in the laboratory, has distilled the knowledge garnered under the open sky.

[2] After Linnaeus, the most notable of these were Erxleben, Gmelin, Pennant, Pallas and F. Cuvier. Their works are the foundations of our present-day systematic zoology.