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THE TREND OF MEDICINE IN THE TWENTIETH CENTURY*

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As practically one-third of the twentieth century is now behind us it seems an appropriate time to pause a moment in order to review some of the activities and achievements of the medical profession during this period, to examine the trend in certain of those activities and to indulge in that fascinating pastime of speculating upon what the future will reveal in regard to some of the medical problems. It is perhaps an unusually appropriate time for the profession to try to form a clear picture of the present trend in medicine because today in many branches of this broad field there are certain of our problems under discussion by the general public as well as by members of the profession. The solution of these problems is a matter of considerable importance to the medical profession and if they are to be solved in the manner that the profession desires the profession must take an active part in these discussions. To help guide the physicians in this task a survey of the existing situations in certain medical activities and a comparison with conditions as they existed in these same fields at the beginning of the century may be of interest. Obviously the whole field of medicine is too broad for one to attempt to cover it completely in a discourse of this sort. Among the activities, however, which it seemed to the speaker would be of interest to this audience are such as medical education, the department of public health, the nursing profession and the organization of the medical profession for the practice of medicine.

Despite any problems which may exist in medicine the bright spot which steadily shines is the progress that is made in our knowledge of disease. New discoveries are continually being made which clear up the etiology of some obscure condition, or add a specific form of therapy, or show how to eradicate or protect against some disease. The number of important advances naturally varies in different generations but the profession may look with pride upon the discoveries which developed during the first third of the twentieth century. The introduction of the use of insulin in diabetes and extract from the liver in primary anemia mark this period with the mastery of two hitherto fatal diseases. The electrocardiogram and the determination of the basal metabolism have opened up our knowledge of cardiac disease and the mysteries of the thyroid respectively. The comparison between the methods of producing anesthesia at the beginning of the century when practically only ether or chloroform was used for continued anesthesia and the many elaborate mechanical devices employed now with numerous preparations which may be given by mouth or rectum, intravenously or intraspinally as well as by inhalation may be used to illustrate the progress made in adding to the comfort and welfare of the patient. However, it is not the aim of this discourse to enumerate or discuss the advances which have been made in the diagnosis, treatment and prevention of disease during the generation which has just passed. In the meetings of the different sections of this society, in the meetings of other societies and in the medical journals these facts are being continually presented.

In looking over the medical journals published at the beginning of the century one is amused at certain theories about diseases ill understood at that time which are open books to us today. For instance in an article on hay fever and asthma no mention of sensitiveness to plants or protein is made. It is interesting to speculate what procedures of the present day carried out with all sincerity by the profession will be discarded as absurd by the physicians in the latter part of this century just as we have discarded the promiscuous bleeding which was used as a therapeutic agent in bygone days and the absurd combinations of medicine which were given with enthusiasm to cure self-limited diseases. The headmaster of a prominent New England School was perhaps turning the light upon one of these absurdities when a few years ago he said "the tide has turned, we have one boy in the entering class who still has his tonsils." There is reason to hope that the custom of giving medicines for the psychological effect may eventually be discarded not only to the benefit

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of the patient and his pocketbook but also to the embarrassment of the cults. For certainly a great measure of the success of the cults depends upon the improper handling of so-called functional problems by the medical profession. But let us return to a discussion of those medical activities mentioned above which have been selected for today's talk.

The education of the undergraduate medical student and the provisions for physicians to continue their studies after taking up the practice of medicine will ever be living issues. Very pronounced changes in these fields have been made during the first third of this century. It is by no means established that the best program for teaching medical students has been developed. The restlessness of the medical educators in regard to their curricula and the changes which are made every few years prove that the whole problem is in a transitory stage. The expression used naturally above "teaching medical students" is indicative of the author's failure to keep abreast of modern education because nowadays teaching anyone anything seems to be considered old-fashioned and in place of that the student should simply be given the opportunity to learn and be stimulated and guided in so doing.

If one compares the medical schools of today with those same schools as they were thirty years ago interesting points are brought to light. Let us take for examples the three medical schools in this Commonwealth which are recognized by your society as efficient schools. The increase in the combined annual budgets of these three schools has been about 500 per cent having risen from about $217,000 to about $1,287,000. During this same period the membership in the faculty and teaching forces has increased from 297 to 967, or about 220 per cent. This of course includes the research workers of both periods. On the other hand the students in these three schools during this period have only changed from 885 to 1224, an increase of about 40 per cent, which is quite in contrast to the increase of over 220 per cent in teachers and 500 per cent in expended money. If the number of teachers and students continues to increase at this same proportion it will not be long before there will be many more instructors than students in our schools. This proportion of teachers to students seems to be a peculiarity of medical education as compared with other professional or undergraduate schools. The question may well be raised, is this essential or desirable?

The failure of the number of medical students to increase in proportion to the number of instructors and the amount of money involved in medical education is of course in part due to the tendency for medical schools to limit the number of students. There is considerable feeling, which is growing, that the schools of this country are not doing their duty to the public by this limitation. The argument that medical education requires certain laboratory and other equipment of an elaborate nature and therefore only a limited number of students can be properly handled, hardly seems a sound one when one considers that thirty years ago with much less money and fewer teachers satisfactory medical education was given by our schools to a relatively larger number of students. Some reorganization of the methods of teaching might well be worked out so that larger numbers of students could be cared for with the present financial outlay and numbers on the teaching staffs.

An editorial in your *Journal* has recently called attention to the fact that there are about 13,000 students eligible to study medicine each year but only about 6000 are taken into our schools. Of the 7000 who may not matriculate in our schools about 2000 go to foreign universities to study medicine, leaving 5000 potential medical students who are deprived of the opportunity to study medicine. No one can say how many Pasteurs there might be in this group who are being driven from adding to the welfare of the human race through the profession of medicine by this limitation of enrollment in our medical schools. Presumably a reasonable number of these 2000 students who go to other countries to study medicine eventually return to this country to practice medicine. If one believes in our educational institutions, would it not be better to give them the advantages of education in this country rather than to force them into foreign lands for a possibly inferior medical education? It is considered by many a fundamental error on the part of our educational institutions not to provide opportunity for higher education to those who qualify in the preliminary stages and are desirous of continuing.

During the first third of the twentieth century the population of Massachusetts has increased about 51 per cent from 2,805,346 to 4,249,614 while the number of physicians licensed to practice medicine has only increased about 20 per cent from 5497 to 6595. The difference between the increase of 20 per cent in the physicians licensed to practice and the increase of 40 per cent in the number of medical students in this period is probably due to the numerous opportunities for work for graduates from medical schools which do not require a license from the State for participation in them. Such opportunities are steadily increasing in the profession of medicine and therefore this discrepancy between the number of graduates of our medical schools and those who go into the practice of medicine in some form will probably increase. With the population increasing more

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rapidly than the number of medical students and over twice as rapidly as the number of physicians who go into the practice of medicine the development of a shortage of physicians for the care of the public may soon develop. This is another reason for serious consideration on the part of those who control the admission of students to our medical schools about their policy of arbitrary limitation in the number of students.

It is difficult to believe today that at the beginning of this century serious discussion was going on in regard to the value of bedside teaching in the clinical subjects. It certainly would seem strange today to think of trying to learn medicine without having the student in close contact with the patient. Changes, which are of considerable interest, in the curricula of the medical schools have been gradually developing during this century. In the Harvard Medical School which I have taken as an example 2160 hours at the present time are given to clinical work as compared with 1968 hours for the clinical subjects thirty years ago, an increase of about 10 per cent. In the preclinical subjects the number of hours per year, however, has dropped from 2129 to 1432, a decrease of about 33 per cent. While these changes have been going on, due to the trend of the times to eliminate fixed exercises in teaching and give the students more opportunity for reading and thought, there has been a general diminution of about 12 per cent in the total number of hours for fixed exercises in the Harvard curriculum. These figures may be of interest to those who fear that with the rapidly increasing mass of knowledge too much attention is devoted in medical schools to the scientific aspects of the different subjects and not enough to the clinical application of the established facts.

It is also of interest especially to those of us who feel that specialism might well be relegated to postgraduate medical study to note that during this period the tendency has been to increase the number of hours devoted to the four general subjects, Medicine, Surgery, Pediatrics and Obstetrics, and to decrease the number of hours devoted to the clinical specialties. A striking exception has been the increase in the number of hours devoted to Psychiatry which in the Harvard Medical School has increased over 250 per cent. The same is true of the other schools in this State in regard to Psychiatry. The increase in the time devoted to this subject shows that at last a realization has developed of the importance of environment to many of our problems of illness.

Before leaving the subject of medical education our attention should be turned for a moment to the opportunities offered to practicing physicians for postgraduate instruction. The discoveries in regard to the etiology, treatment and prevention of disease come so rapidly that it takes considerable planning to see that the practicing physician can be given an opportunity to keep up to date. The busy practitioner may have his time so filled that it is difficult for him to attend meetings or carry on graduate study, or his location may be so isolated that it is hard for him to make contacts with opportunities to learn the new advances in diagnosis and treatment. Improvement in transportation, making it easier to reach the medical centers in order to hear about the new things, tends to eliminate the latter difficulty and thought should be given to the organization of one's practice so that time may be taken off for study and attendance upon medical meetings. The problem, therefore, calls for the development of opportunities for study for the practitioners and their organization of their work so that they can avail themselves of the opportunities offered.

The tendency for individuals doing the same kind of work to combine for practice gives an opportunity for individual members of the group from time to time to take up graduate study or to visit other clinics in order to learn about the recent advances. Unfortunately during this century the advances in the development of opportunities for graduate teaching have not been striking. Although there has been some elaboration of the courses for graduates offered during the winter and summer by our medical schools the attendance has not been impressive enough to make one feel certain that this is the best way to organize this work. An attempt to send teachers into the outlying districts rather than to have the individual doctor come to the medical center so that more physicians can be reached with a minimum loss of time to the practitioners has been making some headway.

Recently your Society has been active in trying to work out some program for the busy practitioners so that they may keep up to date with a minimum loss of time. Just what will be recommended is unsettled but perhaps the utilization of various hospitals scattered throughout a community for graduate teaching by means of clinics arranged to cover the advances in the various fields may be the proper solution. These clinics can be given by the staffs in the larger centers and in the smaller cities and towns by instructors from the teaching centers. Every effort should be made by this Society to provide graduate instruction so that it may be easily obtained by those members who wish it and forced upon those who do not clamor for it.

In connection with this problem of postgraduate instruction for the practitioners the medical journals of course have been of tremendous service. It is interesting to note that since the beginning of the century there has been a drop in the number of medical journals in this country and Canada from about 250 to about 210.

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This is a decrease of approximately 16 per cent. This diminution in the number of medical journals is apparently due to the elimination of the smaller and less well-known journals because of the better-known ones practically all have survived and new ones of importance added to the list. Presumably, therefore, this method of offering graduate instruction shows no signs of deterioration.

If the author may be permitted to speculate on the future of medical education he predicts that eventually the number of instructors in relation to the students will be diminished especially in the clinical branches in which the existing ratio seems unnecessary. He also predicts that the chiefs of the clinics will in great measure retire from private practice in order to devote their entire time to the organization of their clinics for the care of the patients and the teaching of students and to participation in and the stimulation of research. The argument of bygone days that the head of the clinic should continue to do some private practice in order to make him a better teacher seems unimportant. Of course experience in private practice is an important factor in developing a man for a professorship and the head of a clinic, but there is little evidence that after reaching that position it is necessary or desirable for the professor to continue in that part of medical work. It seems reasonable to believe that he will do better work for his university if he eliminates the time-consuming factors of private practice. The question is also raised whether the chief of clinic and professor with all his other duties is able to render so efficient or prompt service to the patient. Still another prediction is that the training of specialists will be better organized in the future and some more definite standards established so that one may not become a specialist just by assuming the title.

The increase in the activities of the Department of Public Health of the Commonwealth of Massachusetts during the twentieth century has been very striking. This department was created in 1914 to supersede the old State Board of Health and to include in its duties the management of some of the hospitals which are run by the Commonwealth. Thus the department found itself not only involved in protecting the health of the citizens or so-called preventive medicine but also in the treatment of patients, namely, practical therapeutics. If the Department of Public Health is going to continue to take part in the practice of medicine the question may well be raised, why should not eventually all the hospitals which are managed by the Commonwealth be included under this department? Because the activities of the Department of Mental Diseases are so extensive it may seem a bit startling to suggest including them in the Department of Public Health, but it is also somewhat illogical to have different types of disease treated by different departments in these days when the tendency is to try to treat the individual as a whole.

To emphasize the growth and far-reaching activities of the Department of Public Health is difficult. Perhaps one way is to call attention to the fact that in thirty years the budget of this department compared with the budgets for those bodies grouped in the present department has increased from about $130,000 to $2,365,000, an increase of about 1700 per cent. These figures do not include $1,039,000 for the special building program for hospitals of a recent year as compared with a special appropriation of $110,000 for the same purpose in a year at the beginning of the century.

This increase of 1700 per cent in the amount of money expended on public health problems is especially interesting in view of the fact that the population of the Commonwealth has only increased 51 per cent in this period and the whole state budget only about 700 per cent. Certainly this relative increase in the expense per capita for public health service cannot be accounted for by the increase in the cost of living, et cetera, during the past thirty years. It should mean more activities and more service on the part of the Department of Public Health than existed at the beginning of the century. Let us analyze the situation in order to see if such is the case and let us examine with a critical eye to see if we approve of these increased activities and this added burden to the tax payers. Let us also consider whether some of the activities engaged in by the Department of Public Health should not preferably be performed by the individual physician or the local community. Is not perhaps the department interfering with the activities of the individual physician and making it more difficult for him to secure an adequate income from the practice of medicine? Of course in this regard the question also comes up as to whether the department or the individual physician can render better service in the activities undertaken by the department.

A glance at the latest report of the Department of Public Health in comparison with the report of the State Board of Health at the beginning of the century will show that the activities of the present Department are much more numerous and that the amount of work in the same activities as existed then has increased tremendously. For example the prosecutions by the Commonwealth for violations of the laws regarding food and drugs in 1931 were 324 as compared with 95 in 1901, an increase of 240 per cent. It is interesting to note that there has been no diminution in the excellence of this work with the increase in its amount because in 1931 94 per cent of convictions was obtained as compared with 93 per cent in 1901.

The expansion in the number of hospitals

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for the care of tuberculosis has also been remarkable in this period. At the beginning of the century there was only one hospital run by the Commonwealth for this purpose, which was at Rutland. At that time this hospital had a daily average of 168 patients and 65 employees. In 1931 the daily average of patients was 361 and the employees 203. Besides the hospital at Rutland at the present time there are hospitals for the treatment of this disease at Lakeville, North Reading and Westfield. In addition to these hospitals the Commonwealth pays a subsidy to various cities and towns to help them care for their patients with tuberculosis in local hospitals.

Among the new activities which the department has been gradually assuming are the problems of Adult Hygiene and Child Hygiene. In addition the Commonwealth has recently taken up certain aspects of the cancer problem and has a hospital for the treatment and care of some of those unfortunates at Pondville.

It is interesting to note that in the index of the report of the State Board of Health in 1901 the words *gonorrhea* and *syphilis* did not appear. Fortunately our present department of health is endeavoring to help eradicate these diseases which cause so much suffering and economic waste. The Department is also expending much time and energy combating certain diseases of epidemic importance which have become more prevalent during this century. Poliomyelitis is an example of such a disease for in 1901 there were no cases of poliomyelitis mentioned in the report of the board as occurring in the Commonwealth while in 1931 1,428 cases of this disease are recorded.

In addition to trying to eliminate preventable disease by sanitary measures and to taking part in the practice of medicine so far as the care of certain diseases such as tuberculosis and cancer, the department takes charge of the production and free distribution for use by physicians of materials to treat disease such as antisera and for the prevention of disease such as vaccines against typhoid and virus to combat smallpox. The laboratories of the department are available to the physicians of the Commonwealth for diagnostic procedures essential to the proper practice of medicine.

The educational activities of the department through its division of adult and child hygiene are pronounced. Usually at the request of local communities demonstrations are given in order to show the proper way for learning the early detection of certain diseases or how to protect against preventable disease. In the child hygiene division problems in dentistry and eradication of diphtheria receive special attention. In addition to the educational program put on by demonstrations, et cetera, the department edits various publications of an instructive nature suitable both for the layman and physician.

No attempt will be made to enumerate all the activities of the department, but I think it will be obvious from the above that the citizens of the Commonwealth are receiving a proper return from the Department of Public Health despite the tremendous increase in expenditure for this work during the present century. It is interesting to note that the report of the Department with all its added activities was included in a volume of 225 pages while the report of the State Board of Health alone in 1901 appeared in a volume of 615 pages. This suggests that the trend is for more action and less talk on the part of these public servants at the present time.

Attention should also be called to the persistent agitation on the part of certain citizens in this Commonwealth to increase the activities of the Department. The attempt to have a hospital established for the care of cases with chronic arthritis a year or so ago is an example of this.

It seems quite clear that the department is doing its work as well as the individual physician can do it and therefore there is no criticism on this score in having the department extend its activities. The question of whether the department should engage in these activities rather than to have the individual physician or the local health authorities do it presents a more complicated problem. From talks with the Commissioner I obtain the impression that his activities in the different communities along educational and preventive lines are practically always at the request of some groups although not always by the physicians in the community. I also gather the impression that the Commissioner would be only too glad to have the local communities take over many of the activities of his department but he finds that often they are not prepared to do so. From a purely selfish point of view it is interesting to realize that the business of the local physicians in prophylactic procedures among private patients has practically always improved in those communities in which the department has aided in giving advice about and providing actual preventive measures against such a disease as diphtheria.

A much more delicate problem for the department than the dissemination of advice about the prevention of disease and the assistance it gives in prophylactic procedures is the fact that the department is actually taking care of sick people and the tendency is for this activity of the department to broaden rather than shrink. The Department of Public Welfare looks after those who are needy, be they well or ill. The Department of Public Health, however, should offer the same opportunities to all the citizens, rich or poor, and it seems reasonable that unrest should appear among the physicians who fear that eventually this tendency on the part of

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the department may lead to so-called State Medicine and the elimination of private practice. This tendency of the department is in reality a challenge to the medical profession because if the physicians individually and the communities locally will only provide satisfactory treatment for the patients who need it there will be no invasion of that community by the Department of Public Health. It is only when the proper facilities for the best care of patients are lacking in a given community and the department is called upon to help out that it steps in. My impression is that the Commissioner would be only too glad to restrict his activities to sanitation and general problems in preventive medicine and to supplying materials and laboratory facilities to the physicians. The tendency to force the care of the ill upon the Department of Public Health is not looked upon by the Commissioner with enthusiasm. On the other hand, who can blame him for wanting to offer the best advice in the eradication of disease or to offer proper facilities for care in cases where the physician and the local communities are not doing as good work as the department can do? It is also often exceedingly difficult to separate the care of the individual ill patient from the health of the community and therefore the problems of preventive medicine and curative medicine must overlap.

Speculation in regard to what the Department of Public Health will be doing later in the century is difficult. It seems quite certain that it will expand along the lines of increased laboratory facilities and the preparation of specific materials for prevention and treatment of disease. It will be ever active in trying to eliminate preventable disease from the Commonwealth as well as helping to find the cause of disease and the source of epidemics. It must continue to expand in its activities in helping to enforce the laws of sanitation, pure food, et cetera. The speaker feels less certain, however, about the department's continuance in the practice of medicine. As hinted above it seems possible that the custom of the Commonwealth to take care of individual diseases in isolated groups such as mental disorder, cancer and tuberculosis might well be replaced by some more comprehensive plan. Certainly there are many objections to this method of isolated hospitals for a particular disease as will be brought out later. Should the Commonwealth go into the practice of medicine more extensively on a broader basis, it is hard to predict whether this work would be made a subdivision of the Department of Public Health or a new department. Perhaps the State will retire from the practice of medicine. This, however, seems unlikely.

During the first third of this century the developments in the nursing profession have been numerous. Many changes have taken place and there are many problems at the present moment in need of solution. For instance at present there are no laws controlling the practice of nursing in this community. Any one can pose as a trained nurse. By the system of registration of nurses some attempt is being made by the Commonwealth to designate those who are especially trained in the nursing profession. Whether nurses should be licensed in the same way that physicians are is a question for consideration at least. The public is only slowly awakening to the realization of what the significance of registration is in the nursing profession.

The increase in the production of trained nurses in this country as a whole is also a serious problem. At the beginning of the century there were 432 training schools for nurses and about 11,000 pupil nurses in training. In 1930 there were about 1800 training schools with over 100,000 pupils in training, an increase of over 800 per cent. This increase is in marked contrast to the increase in the number of physicians or the population. Already before the general depression set in the nurses were beginning to have pronounced unemployment and now the situation is rapidly becoming serious. The trustees of hospitals are glad to have training schools because they are a financial saving to the institution and therefore they are loath to give up the school in their own hospital. Perhaps the failure of many of the nurses to make a living at their profession may eventually cut down the number who go into training, but it seems as though many hospitals should seriously consider giving up their training schools in order to help in cutting down this excessive production of trained nurses and use graduate nurses for running their plants. Of course the question of which hospitals will add to their expenses by hiring graduate nurses and give up this financial assistance from the training schools is the stumbling block.

The education of the trained nurse has gone through many changes during the last thirty years. In this period educational requirements for admission to training schools have appeared and have been gradually increased and now the work in some training schools may count toward an academic degree in about fifty of our colleges. During this time instructors have made their appearance in the schools so that the young women are instructed in their profession rather than just picking it up in odd ways. With this improvement in the education of the trained nurse the opportunities open to them other than the actual nursing of ill people have increased. For example many nurses go into administrative jobs or public health work, while others become expert in giving anesthetics, act as operating assistants or work among the school children. Although it is a distinct convenience for the physician to have a well-educated and trained woman help in caring for a sick person it is

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not by any means always necessary. Naturally, however, the person who has put more time and study into her education is entitled to more compensation than the less well-trained individual. This makes the modern trained nurse too expensive a luxury for many cases in which a less well-trained individual would be good enough for the nursing that is needed.

The nursing profession should arrange to train some women to be practical nurses as well as to educate others more elaborately. Already there are some schools for this purpose. In the future perhaps some of the training schools in the smaller hospitals may be devoted to this. It is not clear to the speaker why the better schools should not turn out women with different grades of training as nurses just as a university turns out graduates with different degrees of education, but the leaders of the nursing profession in this community at least do not think that this is practical. Perhaps in the future some such plan may be worked out.

The place where the special nursing is done has changed considerably with the increasing use of hospitals for the care of the ill, especially private patients. During the month of March, of 1600 calls at the Central Directory in Boston for special work all but one per cent were for work in hospitals instead of in private homes. Some apprehension has been expressed by physicians that with this tendency to elaborate the education of the trained nurse she may be too well trained to be of practical service. The speaker does not have this apprehension but feels that the better trained the nurse is the more effective she becomes other things being equal. My prediction is that there will be no let-up in the extent of the curriculum in the better schools. Why should not the nurse in training pay for her education just as students in other schools or colleges? Perhaps if a tuition fee were charged the overproduction of nurses might tend to correct itself.

The character of the practice of medicine has been going through pronounced changes in recent years and presumably will continue to do so for some time. At the beginning of the century the old-fashioned general practitioner had already begun to disappear and this type of physician should soon cease to exist. This is only just because diagnostic and therapeutic procedures have progressed to the point that no one individual could possibly be able to carry them all out in an acceptable manner. With this elimination of the general practitioner specialists have been increasing in numbers and more and more physicians are contracting their work into narrower fields. As Cheever pointed out in his Annual Discourse in 1925 specialism is not a recent development but has existed in medicine for over a century and perhaps always. However, the relative proportion of specialists has lately increased with rapidity. The result has been that the layman especially in the larger centers has often been at sea in regard to the best way to begin to handle his medical problems. Instead of consulting some physician who is trained to look upon his medical problems from a broad point of view he may find himself consulting some specialist with a very limited field of medical activity as it is difficult for the layman to know just what type of work the individual physician does. This confusion in regard to whom the layman should originally consult may add considerably to the expense of the illness and also detract from the efficiency of the service. Not only is the layman confused in regard to whom to turn, but the doctors themselves have not worked out any definite program of organization for rendering the best medical service. Various combinations of physicians have been tried and clinics of different types organized but it is still an unsettled question as to what is the most satisfactory organization and very likely different plans will be necessary for different localities.

In addition to the changes in the character of medical practice that have been going on the expense of medical care has increased to such an extent that there is appreciable agitation upon the subject by the laity. Considerable time and money have been spent by various groups in studying this problem and from one of these studies, namely, the one made by the Committee on the Costs of Medical Care specific suggestions have been made with the hope of solving some of the difficulties. These suggestions have started considerable discussion and have by no means been universally approved by the medical profession, in fact the committee itself could not reach a unanimous agreement on what was the best way to solve these problems of the costs of medical care.

Obviously in the long run the best of medical service will be the cheapest. We all are only too familiar with the picture of some individual who has wasted money on the cults or on poorly organized medical care or on poorly rendered medical service so that finally there has been unnecessary duplication of expenses. Therefore, not only in order to render the best service to the individual should the profession organize itself, but also in order to do its share toward solving this many-sided problem of the costs of medical care should it organize to give the public in the home, in the office and in the hospital the best of care.

Having worked out among ourselves the way to deliver the best medical service to the public, the public should in turn be educated up to a realization of what it ought to receive from the profession. Of course the profession is trying to do this and the transitions in the character of the practice of medicine and the organization of hospital services are the result of these efforts. At the present time, however, medical

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service is by no means ideal and the public is certainly far from realizing the way to secure the best medical service.

Instead of discussing the various trends in the organization of the profession for rendering service to the public I shall outline what seems to be the best program, calling attention to where the existing customs on the part of the public and physician deviate from the plan to the detriment of the service rendered and to an increase in the costs. There are two chief features of this program, namely, the work of the physicians and the organization of the hospitals.

The pivotal point of the whole ideal scheme is the successor to the old general practitioner whom for lack of a better name let us call the family medical adviser. If the public could be taught that each individual or family should have a family medical adviser to whom the patient will aways go no matter what the problem is, a tremendous step in advance toward receiving the best of medical service will have been made for the patient. The tendency for patients to go directly to some one specialist all too often leads to poor medical service because of that lack of knowledge of the patient's environment which the family medical adviser will have.

The next important point in the program is to have it clearly understood what this family medical adviser should be and do. He should of course be a well-trained physician. It is for this reason that the profession should be ever active in keeping up the standards for medical education in the Commonwealth. He should be thorough in his examinations and study of all patients. The more vague the symptoms the more intensive the study should be. Fortunately the tendency of some members of the profession to treat symptoms without making a definite diagnosis as to their cause is diminishing, but unfortunately we still meet at times evidence of this pernicious habit. I cannot help but wonder if the "office hour" may not be responsible for this in part. With the crowded waiting room it is only natural to hurry with resulting errors of omission as well as judgment. It would be a distinct step forward if the family medical adviser would only see patients by appointment. This physician should only refer his patients to specialists for tests which require some technical skill that he is unable to perform or in some cases to receive the judgment of the consultant of broader experience. The report of the specialist or consultant should be used by the family medical adviser to help him make the final diagnosis and not just accepted blindly as correct.

In regard to treatment the family medical adviser should take care of as many of the ills of his patient as he is competent from his training and his equipment to treat successfully. The others should be sent to the appropriate specialist for treatment. The family medical adviser should be the man to make the so-called periodic health examinations and not some group of physicians without any knowledge of the patient or his environment. In order for the family medical adviser to keep up with the progress in medicine he should be associated with some other physician doing the same type of work in order that one or the other may have time off for vacations and for study and still have their service available for their clientele at all times. This family medical adviser must also have confidence in himself and not be overawed by the opinions of the specialists.

The next important step in the organization of the medical profession for rendering the best service is to make it clear what a specialist should be and do. In the first place there should be some method by which the fact could be established that a physician is qualified to consider himself a specialist. He should be a man who by special study in a limited field has perfected himself in the use of some diagnostic procedure that is too complicated for the average physician such as cystoscopy or he should be an individual who has learned some special procedures in the way of treatment that are too complicated for the busy family medical adviser to undertake, such as various surgical procedures.

If the specialist would make it a rule only to see cases in consultation with other doctors one of the important causes of poor medical service would be removed. The tendency for patients to go directly to specialists who are unfamiliar with the patient's home conditions and other problems, the failure of the specialist, often at the patient's request, to articulate with the family medical adviser, and the tendency to send a patient to another or to several other specialists often result in unsatisfactory conclusions being reached in regard to diagnosis and suggestions for treatment to say nothing about the extra expenses. Frequently these patients have no physician whom they look upon as their family medical adviser which makes it difficult for the specialist to find some one with whom to articulate, but it is to just such a patient that the specialist should show the need of a family medical adviser.

If the specialist would only see cases in consultation and not allow patients to come directly to him, this unfortunate habit of the patient of diagnosing his own case and picking his own specialist would diminish and might even entirely disappear. Although many physicians say that they are specialists or consultants and only see patients referred by other physicians very few in fact, one might almost say none, live up to this in practice because almost all will make appointments with patients for consultations and treatment in the office or hospital without insisting that the patient be referred by the family adviser.

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In this program for rendering the best medical service to the public the position of the pediatrician should be defined. Is he to be looked upon as a specialist or as the family medical adviser for the early years of life? Although at the beginning of the century he was obviously a specialist who was called in consultation by the general practitioner or by some other specialist, as the obstetrician, usually for feeding problems, his position in medicine is now changed and the pediatrician usually takes charge of the baby completely at birth and continues to look after the child for some years. The inability of many modern mothers to nurse their babies successfully has increased the demand for pediatricians. At first the pediatricians were pretty well limited to the larger centers but now cities of all sizes have physicians who are especially interested in the care of children and even in the smaller towns one frequently finds an individual who prefers to confine his work to pediatrics. It seems best, therefore, in this ideal scheme for the practice of medicine to look upon the pediatrician as a family medical adviser for the young rather than as a specialist.

It is of course difficult to draw a sharp line as to when the pediatrician as the family medical adviser of the infants and children will be replaced by the family medical adviser for the whole family and there is bound to be overlapping. The family medical adviser on going downstairs, having pronounced that George and Ethel aged fourteen years and sixteen years respectively have chicken pox, will occasionally meet the pediatrician at the door who has been called in to see the baby because he has some eruption which looks like water blisters. On the whole, however, these overlaps are rather unusual and with the numerous problems peculiar to children such as feeding, deficiency diseases and prophylactic procedures it seems reasonable to have a group of advisers who limit their activity to children. If there is going to be this subdivision of the family medical advisers, however, it is important that the pediatricians tackle the problems of the infants and children as a whole and appreciate the relationship of their environment to their medical problems. My guess is that the pediatrician is here to stay but it is conceivable that as time goes on and these problems of feedings, et cetera, are more clearly established, the family medical adviser may reach out to reclaim the care of the babies and children as part of his field.

Mention was just made of prophylactic procedures especially those applied to children and it is of interest to note the changes that have taken place in these procedures during this century. At the beginning of the century vaccination against smallpox was about all that was deemed necessary in the way of prophylaxis against the usual diseases of childhood. One of our leading pediatricians tells me that today in addition to vaccination against smallpox, inoculations against diphtheria should be done at about one year of age and after six months if the Schick test is positive a repetition of this procedure should be carried out. Furthermore in order to avoid the various deficiency diseases at the age of one month there should be introduced into the diet such vitamin-containing substances as cod liver oil and orange juice. Egg yolk, leafy vegetables and even iron should be added at about six months. For children over five years of age if they attend summer camps or travel, typhoid inoculations are recommended and should be repeated every two years. Also as a prevention against certain infectious diseases the milk for children is now pretty generally boiled or pasteurized. Other preventive measures have been suggested from time to time such as vaccination against pertussis, convalescent serum against measles, et cetera, but these measures have not become as yet a routine procedure.

Besides these prophylactic procedures for the welfare of the infants and children, the pediatricians and school officials have worked out elaborate rules of quarantine against contagious diseases in our public schools. Would that some statistician could discover whether the time lost by quarantine is more or less than used to be lost by the diseases. When one sees the misery of adults, if they pick up in later life these contagious diseases of childhood, especially the milder ones, it makes one wonder if this time lost by quarantine is really worth while. Perhaps, however, there is reasonable hope that in the future it will not be necessary for individuals to have mumps, measles, pertussis or chicken pox just as now we feel that diphtheria and smallpox may be avoided.

With the established prophylactic procedures and the new ones continually being advocated the cost of their application must be considered especially in these days of financial difficulty. The prophylactic procedures become a real problem to the young couple who wish to raise a family and the question of how many of these procedures it is necessary or wise to carry out often becomes a very pertinent one. Furthermore, the question may well be raised, do these procedures have any ultimate effect upon the human organism especially those that involve the introduction of foreign serums into the system? Each family medical adviser be he pediatrician or internist must adopt some program for his patients in regard to prophylactic measures. It may well be that at the present time there will be considerable difference in the programs of different physicians. The speaker is inclined to recommend specific prophylactic measures only against those diseases which are serious and for which we have no specific therapy such as typhoid fever and smallpox. In addition if due to hygienic conditions a disease for

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which we have a specific remedy is prevalent such as diphtheria, prophylactic inoculations may be recommended. Care to avoid deficiency diseases and protection against infected milk should of course be employed.

To establish the above ideal system of organization of the physicians for rendering medical service it would take very little change on the part of the physicians. By so doing much duplication of expense would be saved. Mistakes in diagnosis, in which functional upsets are considered organic disease, would be less. The family medical adviser at much less cost would do many of the things for which the public now consults the specialists at increased cost. To educate the public up to the employment of this ideal system will be more difficult but with suitable publicity and persistence it seems by no means impossible especially if emphasis is placed upon the improvement in service and saving in expense.

In addition to the organization of the individual physicians to render better service the hospitals could be changed in certain particulars with benefit to the character of the service and with economy. The first change that should be made is to eliminate the isolated hospital for some special disease or group of diseases. The time has gone by when one part of the body can be studied and treated intelligently without considering the patient as a whole except for simple and obvious disorders. To study the patient as a whole, complicated and expensive apparatus is necessary and physicians expert in different fields are desirable. Therefore, each hospital should be equipped for complete study of the patient and being so equipped should not limit itself to just one field of work. Because of the expense these hospitals that do limit their work to some special line are not fully equipped to study the patient as a whole often to the detriment of the patient. The most striking example of this isolation of hospitals for special purposes is the hospital for mental disease but we also have hospitals for obstetrical work and gynecology as isolated units. Let us organize our hospitals as complete units equipped to study and treat all types of disease thoroughly so that the absurdity of transferring a patient who becomes somewhat irrational to another hospital for care rather than to another division of the same hospital may be avoided. The size of these complete hospitals may vary but the completeness should not.

In the ideal arrangement for hospital service changes in the usual program for the study of patients should also be made. The plan of assigning a patient to some special service for treatment such as surgical, otological, neurological, et cetera, on a guess in regard to the diagnosis from the patient's story by some admitting officer should of course be changed. As has been brought out above these specialists should be used for certain details of diagnosis or for special types of treatment, the former of which should only be instituted after general studies have been made and the latter only after the diagnosis has been established. It may be argued that these special groups can diagnose the patient just as well as a general diagnostic service. On this subject there may well be some difference of opinion from a theoretical point of view. From actual experience, however, the methods of procedure between the special clinics and the general diagnostic service differ so much that the two cannot be reconciled as equally efficient both from the point of view of economy and efficiency.

In both the out-patient departments and wards of our hospitals all of the patients should be admitted to the service which we will designate as the diagnostic service just as in practice in the homes and offices, the patients should consult the family medical adviser. On this diagnostic service all the physicians and surgeons of the hospital should be grouped so that the patients will have the advantage of special diagnostic procedures and the specialists will have the advantage of contact with general medical problems. From this diagnostic service the patients should be diverted to appropriate specialists for treatments that require their special services. Obviously certain types of cases with a clear diagnosis would tarry but a moment on the diagnostic service and quickly be sent to the specialist be he surgeon, obstetrician, psychiatrist, et cetera, for treatment or special observation. Other cases would be under study for some time by the diagnostic group until the diagnosis is settled. Thus the shuttling back and forth from one service to another with the unnecessary duplication of work and added expense would be avoided. Uniformity of diagnostic procedure which might meet with the approval of the entire staff would be established for all patients so that at least errors of omission would be avoided.

My hope is that the distinct trend at the present time toward making hospitals more complete units for all diseases will continue as the century progresses. May the development of the diagnostic service in the wards and out-patient departments of our hospitals also become universal instead of limited to a few of the leaders. As the century progresses may the public and profession more clearly realize that specialism is primarily for complicated treatment and for assistance in diagnosis by means of special technique. It must also be generally realized that surgery is specialism. Finally the success in making available the best of medical service to the public will depend upon building up private and office practice about the family medical adviser and hospital practice about the diagnostic service.

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