DOCTORS VERSUS FOLKS

TO-MORROW'S TOPICS SERIES

MICROBES AND MEN

A SURGEON'S PHILOSOPHY

DOCTORS VERSUS FOLKS

Century after century the same January ice and snow will grace my beautiful stream at Merribrooke. The same trout will dart through its whirling waters, but the deer and the otter will soon leave their very last tracks upon its bank, never to be seen there again during all future time.

DOCTORS VERSUS FOLKS

To-Morrow's Topics Series

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PREFACE

When the original notes for "To-Morrow's Topics" were compiled, the plan included nothing more than a series of running comments of interest to physicians.

The enlargement of several points extended so far into questions of lay interest that it has seemed best to separate these into two other books, "Microbes and Men" and "A Surgeon's Philosophy," and to publish these books separately, yet belonging in a general way to one series, which includes "Doctors versus Folks."

R. T. M.

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(References to some of these topics will be found also in the Indexes of the other books of the series.)

CONTENTS

DOCTORS VERSUS FOLKS

TO-MORROW'S TOPICS

CHAPTER I

As one begins to retire from the arduous part of his professional work, and to leave details more and more to assistants, he is sometimes retrospective, although retrospection is said to be the first clinical sign of hardening of the arteries. In the early days of professional life a man may engage in activities of which he disapproves subsequently. In later years Saul may become changed into Paul and his final epistles are those of Paul. When a man is engaged in new work of his own, or in expediting as an apostle the new work of others, a very close watch is kept upon him by members of the profession, who observe if he makes any mistakes. One false move or the display of a weak point drops him back so far that many steps are required for regaining position. Looking back over the history of about thirty years of experience in the medical profession, it is interesting to note what things one would do over again in the same way and what things would be done differently. Personally, I would at least like to have the author's privilege of revising proof and making some inserts. My observations may be of value in showing recent graduates what not to do, quite as well as in suggesting what they may do to advantage. It is perhaps well to advise young men in any profession not to take much advice. This applies to my own remarks, which are presented in a spirit of ordinary helpfulness for those to whom they appear to have

a meaning. Had I taken much advice from others, almost every one of my mistakes and great discomfitures might have been avoided; but on the other hand, every thrilling experience of value and the joy of successful experiment would have been lost, because these were achieved through my acting distinctly against advice of counsellors for the most part,—when advice had been asked for or volunteered.

From the very first, older men were doing kindly things for me without my knowledge, trying to ease the ways of a young man and help him along. I did not realize this at the time, and was mightily puffed up in the belief that attention was my due, and that success was following my unaided efforts. Now that I am similarly engaged these later years in helping young men I understand what gratitude should have been extended to men who were lending a hand for me. There are many young men who do not realize the extent to which an older and kindly hand is upon the tiller when they forge ahead. I was ignorant of the efforts that were being made in my behalf but now it is all clear, and I have had many an opportunity in later years to reciprocate, without allowing the reciprocative feature to be observed. That is one of the joys and privileges in a profession, and no doubt the same thing occurs among business men.

A young man's eyes are placed one upon either side of his head like those of a young flounder, in such a way that he can not see straight ahead for guidance. As he gets older these eyes gradually move to a position which allows him to comprehend subjects more roundly.

The character of the profession in your vicinity will depend largely upon yourself because you are a teacher—a living, moving teacher every waking hour of your life. Few young men realize this. It does not occur to them that all responses in social life, as in organic life, are reciprocal to some action.

We are all idealists and the extent of criticism gives indication of the height of an ideal. Young men in our profession are prone to be disturbed by adverse criticism, not realizing its basic significance.

Everyone at the outset of his career must make up his mind to have more causes for distress and trouble than anyone else of whom he has ever heard. He must prepare to have bad luck which is unique in its tendency to single him out for its victim. Too many people will be opposed to him. He is to be misunderstood more than anyone else of whom he knows. Then there is the question of injustice. One will be subjected to such varied kinds of injustice that he may wonder why fate chose him particularly for its recipient. In Borneo, however, and in Africa, and in the Philippines, injustice is carried to a still further extent,—people's heads are actually cut off unjustly, simply because other people want to cut them off. In a civilized country one may glory in the fact that his head is not likely to be really cut off and anything short of that he can stand if his health is good. Justice like honor requires for its description one of those imponderable definitions which will float in thin air. Some of the folks who cry out most loudly against injustice are impatient for opportunity to impose injustice upon others. The share of justice which any individual demands will depend upon the proportion of the "pig trough" which he chooses to preempt.

If one makes up his mind to all of this in advance and transfers it to the profit and loss account, he becomes a free lance, ready to do big things without much interference. He may then carry out his ideals of real work in open sailing room.

It is important for a man to train himself to never take personal offence at anything. The moment he takes offence there is a diversion of energy, and wholesome interest is deflected from important subjects. Every response to stimuli

releases energy, with acid by-products, and these must be disposed of by the liver chiefly. Anger and emotional stress of any sort places an undue burden upon the liver, with bad reciprocal consequences, and may give one gall stones. This is simply a matter within the domain of the will and one can train himself to take personal offence at nothing whatsoever.

There are three other good reasons why one should never take offence. First—a critic may be right. Secondly—he may be demonstrating a temperament for which he is not responsible. Thirdly—he may be wholly mistaken.

It is well to follow the rule to never explain and never complain. A man is judged by his character as a whole—not by individual acts. Explanation is considered by hearers as implying a necessity and brings one under suspicion. Complaint means that a man is a target, and has been hit. Men of large affairs are knocked down on favorite propositions every year of their lives and they enjoy it as much as hearty players enjoy the bangs in a football game. The self conscious man when knocked down just once may have to be carried off the field altogether.

Controversy is a source of great delight, between men who are so tempered that violent impact only polishes them the more instead of roughening them. The sensitive man in controversy spoils all of the fun, because one has to be careful to avoid doing him an injury.

Many people prefer controversy to observation of facts. This trait in human nature is one which all of us meet when introducing doctrines of any sort. I have been rebuked for calling attention to facts which might have been easily verified by almost anybody. Letters from different parts of the world contained denial of points which might have been verified before the letters had crossed the ocean.

Having given men the gregarious habit which would have

the effect of drawing them together, nature then gave them the critical habit in order to keep them apart and in conflict with each other. These two opposing forces were placed in action in order to further evolution. A man who has inimical feelings toward another does not realize that he is at that moment a puppet which is being worked by a string in the hands of nature.

Let me give you a talisman: Avoid all criticism of colleagues in private conversation, and save critical energy for the medical society meeting. One may begin the use of my talisman this year, preferably this week, better yet this day, best of all this minute. Reserve criticism for well-planned analyses of the methods and motives of colleagues—that is the one thing essential for greatest progress. The open society meeting, the reputable medical journal, are the only places in which antagonists have fair opportunity for attack and defence—never in private exchange of misconception.

I have always refused to criticize colleagues excepting at society meetings or in medical publications, where fair opportunity was offered for response. A number of men have imagined that one who could speak so freely in open society meetings or through the medical journals must be pretty dangerous in private conversation. As a matter of fact, I have made it a matter of principle under no circumstances to be critical in private conversation, not even when speaking as "between man and man." It has seemed better to take the side of the one who was absent. This has not always been done because of great interest in or love for the absent man, but as a matter of social policy. One reason is because I have sometimes found myself wrong in my estimate of men. The desire to avoid making an estimate that would need checking up later has led me to adopt this principle in life. The criticism of one man by another is not so often due to malice as it is to

misunderstanding, or perhaps the commendable attempt at making everyone fit high standards.

I remember when a child of once hearing my father speak critically of someone. My mother, in a gentle reproving way, said: "Be careful, the children might hear." Both my father and my mother considered it highly vulgar to speak carelessly of anyone not present to defend himself. Under the latter circumstances there was no hesitation about criticism if it was called for. That was an influence of childhood. At college we seldom heard much expression of animosity among students, because everybody was pretty busy and had no time for that sort of thing. Upon getting into professional work I noted at once the destructive character of criticism which was so commonly volunteered. When visiting a certain city, with occasion to meet a number of physicians, I was very much distressed about the way in which they spoke of each other, and which did not at all accord with my own more correct and unbiassed estimate of their attainments, characters and habits of life. In seeking for an explanation for such a generally inimical attitude, I came to find that it was a matter of "technical wrath" chiefly. There was also an element of legitimate jealousy. This jealousy was based upon high ideals which led doctors to demand much of all members of the profession.

Many times when I have gone to some distant town to be entertained it has seemed to be a very attractive place, and my first meeting with new acquaintances in the profession has been full of pleasure. I gained the impression that all were working harmoniously and usefully together, and the occasion was one of inspiration. Before long, however, some doctor would make uncomplimentary remarks about another whom I held in esteem, and in a moment my feeling toward the whole town changed and I have sometimes wished not to go there again.

This feeling of disgust is never toward the man criticized but always toward the critic, because he has taken a pillar from beneath one of my judgments. There is a great difference between localities in this respect. In some of the Western towns there has been a breezy criticism among members of the profession, and yet with a general air of give-and-take which left the atmosphere still invigorating. It is more often in the East that I have left a town with one wing of my ideals ragged and injured. The fundamental cause of this attitude on the part of doctors which prevents laymen from endowing their institutions freely, is an innate desire for discovering idols.

When travelling about to give addresses in distant parts of the country, one soon comes to learn of this great difference in the prevailing spirit of the profession in different places. Sometimes he will find that nearly all of the doctors are harmonious, acting well together at their society meetings and in local public movements. Under these circumstances one gains the impression that they are all pretty good doctors, well equipped and useful to their patients. In other towns there are certain elements of disturbance in the profession which lead men to work against one another, and the public has as little confidence in the physicians of that town as it should have. The public is inclined to leave them all alone.

We have been careless in the presence of the laity about speaking of responsible members of our profession in terms of what I have called technical wrath. Professor Smith on the college campus does not allow his little boy to play with the little boy of Professor Jones because the little boy of Professor Jones cannot decline *mensa*. Dr. Brown on that account does not approve of Dr. White because Dr. White believes that allergy is a protective phenomenon, and Dr. Brown does not hesitate to express his disapproval of Dr. White in the presence

of a layman. The layman obtains the impression that if a man of Dr. Brown's high position disapproves of Dr. White's beliefs he must be cautious about employing the latter, although he may freely employ a charlatan who denounces both Dr. Brown and Dr. White as belonging to a medical trust. Technical wrath is plain social wrath, so far as a layman comprehends the matter.

In one Western city I had an audience of five hundred and fifty doctors when presenting a subject of new interest, but on presenting the same subject in a New England town of about the same size, a month later, there were only eighteen doctors present, and some of these in private conversation spoke rather disparagingly of others about whose work I asked. The public views the matter precisely as I would, as a visitor. In the first town the doctors get large public support for their hospitals, and obtain the benefit of mutual association. In the other town their efforts will always be largely barren of result. They will wonder why the public takes so little interest in their enterprises. They may not realize who it is that influences the public,—and they themselves the only instructors of that public.

Whenever I am visiting towns in various parts of the country there is often opportunity for speaking with wealthy and public-spirited laymen concerning doctors in their vicinity who are accomplishing things of consequence. I tell them of the need for developing their hospitals and for recognizing men who are recognized in the profession. Not infrequently laymen are surprised at learning that some doctor in their town is known in New York or has a national or international reputation. Such men commonly express a willingness to be of service to the local institutions if doctors would only agree among themselves upon what they want. Public-spirited laymen tell me that local jealousies among doctors are such that

they are obliged to leave the whole subject alone. I explain that the jealousies are of good origin, each doctor hoping to be more useful to the public than the other one. My lay friends say the question is beyond them, although they are ready to be of service if the doctors will only unite in agreement upon what is desired and will then present their requests in good form. It requires very little effort in the course of conversation at a dinner to bring up the subject of local doctors and of their needs. During many years of following this policy I have been of service to numbers of colleagues who do not know to this day about conversation in their behalf that was effective.

When visiting one of my former assistants in his home town, he had much to say about the shortcomings of local colleagues. After listening for awhile I asked if he had nothing better to say for any of them. There was no particular response at the time, but about a month later he wrote in substance as follows.

"When we were driving along the lake-road, you made a passing remark which no doubt slipped out of your own mind right away, but it hung in mine and I got to thinking about it. I suppose we doctors are careless in our comments about each other. My first feeling was that you did not know and could not know the local facts, and how impossible it was not to develop animosities that simply could not be helped. When I thought more and more about it however, there was one doctor who came into mind in a rather curious way. He uses opium. When under the influence of opium he is so sweet tempered, gracious and conciliatory that we all have a good deal of affection for him. Perhaps some of us might be men enough to get to the same point without the help of a drug. I am sure that you did not use a range finder when making that remark. It hit a bull's eye just the same."

The laity do not understand why physicians should not be better agreed upon various points. We ask them to remember that it seems necessary to have a Democratic and a Republican party,—a Senate and a House of Representatives,—in order to arrive at satisfactory compromise upon economic and governmental questions. Judges upon the Supreme Court Bench cannot always agree upon points in law.

One of my acquaintances said that he had given up medical writing because he always stepped on someone's else toes when writing an article for publication. My reply was that he was a pale feeble coward,—that his business was not only to step on toes, but to jump on them with both heels. Personally, I have always been grateful when men jumped on my toes, because it forced me into a belligerent mood, and before the melee was over we all got more or less right upon the points at issue.

Do not hesitate a moment about raising hostility or enmity in the right sort of cause.

Doctors in small towns are acquiring more and more the habit of using medical journals freely and of travelling to society meetings where they can attack and be attacked in scientific discussion. A doctor who remains away from society meetings fails to identify himself. The society meeting is a court which gives doctors an advantage that was previously accorded only to lawyers. There is where we find the strong man who does not fear attack, and who earnestly wishes to be defeated if he ought to be defeated. We find there occasionally the weak man who does not remain long and who runs away and tries to succeed all alone with a lot of wrong views. It is sometimes said that men go to society meetings for the purpose of advertising themselves. Very well! The audience quickly decides whether such advertising is valuable to the individual or not. It is pretty important for one to have

personal acquaintance with men who are thus advertising themselves, and I will take chances on my own judgment in the making of an estimate of their relative values. As a matter of fact, there are few famous men in our profession who do not deserve to be famous. It is extremely important to personally know the men who seek for and who maintain position for their views at society meetings—local, national and international.

Go to the medical society meetings. Be found where doctors assemble. The bond of union furnished by wide acquaintance in the profession is delightful in a social way when one realizes that he can step out of the train in any city in the civilized world and in five minutes call up some personal friend on the telephone,—someone whom he has met at the national or international society meetings. It makes one feel cosily and snugly at home almost anywhere on earth

When I first began practice comparatively little work was done in the county medical societies. Now they are beginning to be finely organized and well attended. The attendance is an index to the character of the profession in any county. There is still a tendency on the part of readers of scientific papers to quote the work of others rather than their own observations. A step in advance will be made to-morrow if a feature of county society meetings consists in the giving of five or ten-minute reports upon cases, in place of the formal reading of papers. Case reports engender respect in proportion to the information which is brought to bear upon each case, but statements of theory arouse a quite different set of faculties, the controversial group (or a desire for sleep). This is undesirable excepting at state or national meetings at which experts are likely to be present in number to settle questions of theory in a large free way.

No man can be both physician and surgeon satisfactorily.

Case reports of well-managed medical cases will to-morrow bring more credit than the more popular present-day surgical reports. This step in progress I clearly foresee. It will come rapidly under one new condition, that condition emerging when fee charges are made for cases as a whole, instead of on the visit charge basis. The physician who presents a five or ten minute report upon a case of headache in which he has thoroughly worked out all of the features, obtained a result, and collected a suitable fee, will be awarded more credit than is now given to a report upon the radical cure of hernia. The reason for that is because there are more headaches than hernias, and more skill is required for relieving people of their headaches. Doctors lacking headache skill turn to surgery for income.

County societies should meet at least once a month and should not be restricted to include only regular members of the profession. All "pathists" licensed by the state should be members. When the state declares peculiar practitioners to be responsible men, and the regular medical profession declares them to be irresponsible, the public is naturally confused. If the society meetings are made largely clinical, pathists of various kinds soon observe the importance of centering attention upon questions of diagnosis. We need not then care very much about who takes charge of the treatment. Members of county societies when working up case reports can send to the librarian of any large medical library for data. Such librarians have expert readers at their disposal who will work up statistics and information bearing upon any sort of case and at small cost. This fact is not generally known to doctors as yet. The tendency at the present time for society members to read papers including knowledge collaborated from others, with the member's knowledge tacked on somewhere, is not the best method for entertaining an audience. A simple statement of collected facts without attempt at impressing one's personal

knowledge, excepting as it relates to special features of any given case, would have a tendency to bring out concrete new ideas from the audience. If men who are conscious of a certain personal inferiority have a tendency to remain away from society meetings through fear of comparison with others, they may comfortably attend meetings in the feeling that every one of the best men in the country has the same feeling. He has failed to comprehend the full nature of a case several times in the course of every month. No one is exempt. The clinical case report system would lessen an objectionable tendency to vain competition in display of erudition, and would allow all members to compare notes on an equal footing. It would inspire the men who find themselves least well equipped to get out and travel, and to engage in further study. I knew one self-satisfied doctor who despised society meetings because his ideas were so often snuffed out at such gatherings. He preferred to employ them unquestioned upon his clientele.

We may not realize to what extent an ordinary society meeting depends for its success upon the genius of the chairman. I shall not forget my chagrin at the superior work of my successor as chairman of the Surgical Section of the Academy of Medicine. The Section had always been composed of an extremely dignified body of men, but there was seldom large attendance at the meetings. The Section was supposed to run itself pretty well; and as chairman I made an effort, as every chairman had done before my time, to bring out good papers and to conduct profitable discussion for maintaining the general reputation of the society. Dr. Lloyd, who followed me in the chair, immediately doubled the attendance and made this Section one of the largest and most active at the Academy. This occurred during the presidency of Dr. Dana, who conducted a successful effort toward increasing the efficiency of all sections of the Academy at that time—an effect

that has been lasting and notable enough to be worthy of recording.

At society meetings it is always a pleasure for me to look over an audience of surgeons, for I know that every single one of them is a man who does certain things particularly well.

One small but necessary item of expense for the physician is the cost of medical journals. He must have many of them at his disposal to-day. Where is the farmer who denies himself the privilege of putting nitrogen, potash and phosphoric acid into his soil? Wisely applied fertilizer brings proportionate return. The poor farmer who thinks he cannot afford to put fertilizers into his soil will continue to think that he is remaining poor, and he will be right. In the same way, the physician who feels that he cannot afford to make use of a number of medical journals is not getting what he should from his acreage of psyche. A single professional fee for a bit of skilled service made possible by a suggestion received from some one medical journal may pay the annual subscription for ten journals, and leave a margin beside.

Students at medical college commonly overlook the opportunity for acquiring French or German or some other language through living at a boarding house in which they would hear a foreign language spoken daily. The idea simply does not occur to them. In almost any city there are French or German families with which the student might just as well board as with an American family, meanwhile unconsciously and consciously acquiring valuable knowledge of another language—to say nothing of the asset of better average cooking. The idea came to me late but profitably.

Men under conditions of freedom that go with civilization are tethered goats. Fasten a goat to a tether six feet long, and he will graze about the periphery of a circle six feet in diameter. He neglects the clover within easy reach on slack

tether,—stretching and straining to get what is an inch beyond. He even gets down upon his knees in order to reach another inch, while good clover in abundance remains within the circle. If his tether is lengthened to twelve feet he will continue to strain and tire himself for things that are just out of his reach. The goat is almost human in his method of missing opportunities. Men get down upon their knees to beg for things not so good as things they have. (Scholars tell us that all prayer is begging.)

As one looks back upon opportunities missed, they seem to have made almost a "continuous performance." Chances for catching thousands of missed dollars, for obtaining choice professional positions, and for making telling advances in scientific work have made for almost every man a circumambient wall filled with doors that would have opened to the right touch. This question of missed opportunities is one which distresses many men. They do not stop to realize that opportunity, if seized, would simply have led them into new complications requiring new adjustments in which failure might have been made. Ofttimes the missing of a great opportunity is the luck of one's life, but men do not know this. The missing of special opportunity doors has never caused any lasting regret on my part, because there were so many other things to be done anyway. Time with me has always been so much more than filled, and yet it is interesting to think back toward doors that might have been opened readily,—and to speculate upon what might have been.

I had an opportunity many years ago to take a professorship in surgery at the medical department of one of two large universities at a distance from New York, but rejected the proposition because of the lack of hospital and library facilities of these particular institutions at that time. The men who came to fill the positions built up such hospital and library

facilities as they required and brought fame to their institutions. That is what I should have been thinking of—what I would do for the university, instead of what the university would do for me? In those days of hearty struggle I forgot that anyone beside myself needed any help. In all probability my feeling was of the sort which prevails among inexperienced men generally. Later along in life when a man gets to understand the requirements of institutions,—to say nothing of the complicated assistance required for maintaining his own established position—he looks at the subject from a different viewpoint indeed. How quickly young men would be advanced by eager superiors in any business or profession, could they but study keenly the needs of these superiors instead of concentrating attention upon their own personal wishes?

If my life were to be lived over again and if similar opportunities were to be given, I would take one of those university positions and then systematize methods for persuading private individuals and legislatures to give large endowments in the interest of the institution. In experience with legislators I have found them as a rule not only willing but inclined to actually vie with each other in securing appropriations intended for the cause of education, when they could be definitely shown that genuine interests of the state were to be served. According to my observation the chicanery of legislators has mostly appeared when they were dealing with selfish commercial or political interests between individuals or corporations, and not in connection with clean-cut public service.

Capitalists are often more than ready to make endowment for education when they are sure of their grounds. Many men of large means are continually on the lookout for opportunity to give wisely when they can be properly informed. In medical circles we have been careless about our method of

informing men who would make endowments. We have chosen to inform them by expressing lack of confidence in each other. The capitalist takes the hint and withholds support. This is due to our "technical wrath" proceeding from idealism, but is quite as effective as though belonging to a lower order of mental characteristics. In the building up of any public institution it is essential that its officials appear to be united. When they are agreed upon the character of their personnel, and their ideals are well outlined, endowment is then more readily forthcoming.

Men who give large funds to establish endowments give because a subject is closely within their range of vision and sympathy, and not because the subject is so separately important.

On that basis had I twenty-five millions of dollars to give away at the present time, I would give ten millions of dollars to a certain medical school which teaches graduate doctors to be of greater service to humanity in modern ways. Ten millions of dollars would go to the natural history departments of my former alma mater and five millions of dollars would be devoted to my experimental work in developing nut trees for furnishing a great food supply for the masses of the future.

More men of large resources would be willing to make endowment for medical education were they to realize what such endowment means. At the present time, high-class teaching of specialists includes the engagement of men who have to devote themselves largely to laboratory work, and who are obliged to give up practice in order to become proficient along certain lines. Such men have to be employed on salary, and the more valuable ones are entitled to command high salaries. An institution which would make use of the service of such men must have large endowment for the purpose. Again,—the teaching in our best medical colleges is largely

object teaching to-day, and large hospitals must be equipped and maintained for the purpose of furnishing object lessons for students who are to assume the responsibility of being of service to the public as practitioners of medicine later.

In the early days of professional life I had never been ambitious for any teaching position, but my friend Dr. A. M. Phelps insisted, against much opposition on the part of others, that I be given a position which combined teaching with hospital work. It is probable that his insistence determined the course of my life work very materially. The desire to teach should belong naturally with a temperament which insures development of ability as a teacher. This is one of those co-conscious innate feelings which is quite as distinct as the impulse which responds to a "call" to art, or to the ministry. I have watched with great interest the development of some of my friends and contemporaries, some of whom have become teachers of international reputation, while others have preferred to devote themselves closely to their practical or experimental work, avoiding the interruptions which go with teaching. Development of men with a gift for teaching has been one of the greatest needs in our profession, and the possession of such a gift would have been a delight to me. There was always a feeling, however, that my acceptance of a teaching position would bring embarrassment to my friends. My plans were all in the direction of being a free lance in doing new work independently and in speaking without restriction.

I have always been fond of facts that were surprising. The element of surprise probably introduced a feature of sport similar to that which one has in ruffed grouse shooting. Ruffed grouse have a way of getting up unexpectedly and with an inspiring vigor that gives the hunter a pleasant shock. Sometimes what I took to be facts were not facts, and this no

doubt places one's reputation for reliability in jeopardy, particularly if he adds a feeling of enthusiasm when imparting to others any supposed facts which had given him pleasure in their finding. It is distinctly risky to have a tendency to enjoy facts that are surprising, because the profession is always a bit on guard against men who speak with fervor. One is apt to be classified as "sensational," which is only a trifle better than being a bore. Perhaps there has been a compensation for this tendency of mine. A predilection for facts that were surprising and for ruffed grouse shooting has probably led me to hunt assiduously for more facts of all kinds, and for more grouse.

Surprising experiences have interested me less than surprising facts because the former may be hard on one's reputation. There was one event that Captain Danes averred would hasten his death, because he did not dare to tell the story, and yet hated to keep it all to himself. We were lying out in a wet battery, snug to leeward of a seaweed bunk, in a keenly high-pitched whizzing Norther. Five wild geese came licking their laborious way, close hauled and mutely over the sissing spume, eating a yard—a foot—another yard—another foot. Bigger and bigger they grew until they were right in our faces. Then all at once that story happened.

At the very outset of practice when forcibly forwarding the ideas of antiseptic surgery, the opposition which met my views was significant. The attitude of mind which one arouses in colleagues toward himself when beginning a professional career is lasting. If he conscientiously exerts the force of a vigorous constitution when advancing new ideas, he arouses at least an attitude of caution on the part of some older colleagues, and a directly inimical attitude on the part of others. The latter may be among the most responsible and best-estab-

lished members of the profession, owing their high position to right and proper employment of conventional established methods. The greatest outcry against new ideas in any field of human activity, however, will probably come from men who themselves carelessly present ideas in which they have little confidence. They are bound to judge others from their own personal experience. The careful scientist on the other hand gives almost too thoughtful consideration to questions which are really fanciful in their origin, because out of his personal experience all questions are to be reduced to their basic principles, no matter what his personal off-hand concept may be.

I was very promptly given to understand my position as a disturbing element in the profession. It was apparent that if my life work was to be devoted to new work with its alternation of mistakes and profitings, frequent embarrassment would be imposed upon my friends. For that reason I hesitated long before asking for any hospital position, and never did ask for a teaching position. The inimical attitude of responsible men in the profession was properly founded upon right ideas of caution. They were not quite sure about me. For that matter I have never been quite sure about myself beyond the question of intention, and have depended upon ultimate results of special lines of activity before coming to conclusions. Doctors rightly propose to compel anyone with new doctrines to fight his way through to his own goal. Understanding so well the reasons for the attitude of mind which was being displayed in opposition to much of my work, I have honored men for their objections and have enjoyed the fine sport of playing a game through all sorts of opposition. A young man who is engaged in doing unusual kinds of work must be more or less alone as a rule. He may count upon many men who will gladly lend a hand, and who will be loyal friends,

but he may well hesitate about asking them to share the discomforts and responsibilities and injuries to personal reputation that go with the advancement of new ideas. In living my professional life over again, there would be no change of feeling in this regard.

The young doctor usually has little money and is pinched for resources at a time when he is most energetic and full of initiative, fresh ideas and enterprise, and physically able to accomplish much. He commonly has no position of importance at a time when he could work hardest. In later years, with money and position, he is not inclined to devote himself so assiduously to work. This belongs to nature's plan of not allowing the oak tree to grow eighty feet in a day. The profession of medicine would advance to the point of dominating all other professions and all other occupations if the young men could have a competence and position, simultaneously with their age and enterprise and love for work—provided that their enterprise and love for work were to persist. This combination, however, nature has shown to be an almost impossible one. The young man with position and financial resources usually lacks incentive to work. Cultural limitations have been approached by him as a rule, and he must go to the bonfire to make room for some normally dissatisfied worker.

It is significant that most of the advances which are being made in medical science at the present time are being made by men in salaried positions. It is impossible for a man whose mind is engaged in the very important and wholly absorbing details of looking after patients during the day to give attention to medical science proper. His thoughts must constantly revolve about this case needing particular care to-day, and that case needing most careful arrangement of advantages to-morrow. There is little time for turning to the

side of medical thought which is moving rapidly toward the future. A different type of mind is required for that. Men who are in salaried positions may take up the various medical sciences proper in connection with pure biology. They must be familiar with zoopathology, phytopathology, protozoology, entomology, bacteriology and biochemistry, because diseases which relate to mankind are only a phase of the greater study of struggle for existence in all organic life. The whole study of disease in man may be comprehended under one term—comparative parasitology. There are practically no diseases of man which do not in some way relate to or depend upon those parasites which nature employs for forcing evolution.

When first getting under way in the profession, full of imagination, enthusiasm and physical endurance, it was my feeling that if a large hospital position could be secured, I would make a name for American surgery and fame for that hospital. Such must be the feeling of hundreds of young men in our profession to-day. The privilege was denied me altogether at first, and with many restrictions of hospital politics later.

When seeking for a hospital position in the early days of practice, I did not understand that the world prefers to have a candidate present his wishes vicariously,—through someone else—instead of making a frank statement of his own wishes. I did not like to trouble my friends or to embarrass them in any way by asking for their aid. That was a mistake! It is best to ask through someone else for what one wants. Upon analyzing the reason for this, one will probably arrive at the idea that it has a very good basis. If every man who believes himself to be particularly desirable for a certain position were to present his claims along with a statement of his own estimate of himself the boards of governors of institutions would indeed be in trouble. The fact that a candidate presents

his claims vicariously, through someone else, proves that at least one other man has confidence in him, and that gives the committee some sort of fixed point as a basis for judgment.

When first beginning professional work in New York, it was difficult to obtain any hospital position because of my vigorous insistence upon introducing the principles of antiseptic surgery. At most of the large hospitals there were one or more men who at least believed in the theory of antisepsis, but on every staff there were more who considered the idea to be fanciful, and these members objected very much to an advocate of the "fad" having any recognition. At this time, however, some of my old college friends in the medical profession at Ithaca asked me to come to that city at stated times, and attend to their surgical work. There was no hospital in the town and it was necessary to operate at the houses of the patients. This gave little opportunity for doing the very best work, and I tried to persuade the physicians to secure means for a hospital from the wealthier men of the town. At that time there were very few hospitals in the smaller cities and towns in this country. Such hospitals have now upset the equilibrium of our whole profession. One day I set out definitely with the purpose of getting public-spirited people interested in the hospital plan and obtained promises of help which sufficed at once to get the project under way. Details of the matter were then taken in charge largely by earnest women of the sort who always appear when a need for such public service arises, and it was not long before we had a city hospital and an infirmary which gave opportunity for good work. The question of hospital staff was a difficult one to settle. One of the older men in the profession who was held in high regard, and properly because of his attainments, felt that he should be made chief of staff, and that all appointments ought to be made in accordance with his views. He was in favor of limiting the hospital staff

to a very few men of whom he approved, and this did not include any of the Homœopathists or Eclectics. Because of the well merited estimation in which he was held in the town, our hospital project seemed at one time to be shaping in the direction of placing him in position as senior authority and facing hostility from physicians who were to be excluded. The committee finally listened to my plan, because I had formulated the hospital scheme primarily and had gotten it under way. This plan was to admit to the privileges of the hospital all men who were legally qualified practitioners of medicine. It was my belief that under this system opposition to the hospital would be done away with and that all of the physicians in town would remain in such respective positions as they had gained previously, in accordance with their tastes and capabilities. This proved to work out well practically. Men who had prepared themselves for surgical work did approximately that proportion of surgical work which they would have done without any hospital, and the ones who did not care for position on the staff made no attempt to interfere with development of the hospital, as they certainly would have done in response to artificial restriction. For personal assistants I chose some of the younger men, and various members of the profession took turns at dispensary work and at serving as regular attendants. There is no need for stating here the more elaborate features of our hospital plan. The intention is simply to give a bit of early history very briefly, because of its interest in relation to hospital questions of that day. Work increased to such an extent that Ithaca might rapidly have become a centre for much surgical work if executive ability had been a feature of my nature. That however was lacking, and I had a continuous desire to give up outside work in order to remain closely in New York, even though the work was fast increas-

ing at Ithaca, where it was sometimes necessary to do ten or twelve important operations, or even more, in the course of a day's work. Our statistics were such that records kept for two years showed the death-rate to be smaller among patients undergoing major operations at the hospital than among well people who went sailing on the lake. In New York, my friend Dr. Phelps, insisted upon my being given a position as instructor in surgery at one of the new-method teaching institutions. This gave opportunities which were increased step by step to higher position and the Ithaca work was left to assistants.

The young doctor just beginning practice feels deeply complimented when he is chosen to take charge of a case. He feels like rewarding the people for their wonderful insight by charging them nothing at all for his services. The public is very wise in matters of this sort, and does not hesitate to take advantage of kindly traits which it discovers in its doctors and in its clergymen. The same public stands more or less in awe of the lawyer,—if he is a capable one. Modesty really stands in the way of success of very many young physicians, and some whom I have known have remained in obscurity because of such modesty. When serving on the house staff at Bellevue Hospital, it seemed to me a very nice idea to ask the staff members to give a testimonial of esteem to one of the visiting surgeons who had taught us valuable modern methods, and who was about to leave for another institution. I drew up the statement of appreciation and felt that it would be proper to have some other member of the staff put his name at the head of the list. After securing the names of nearly the entire staff, my own was placed well down in the column. The object of our admiration naturally supposed that the first name on the list represented the one who had conceived

the idea of the testimonial, and was so pleased that he gave him an important position. Thus ended one of my first lessons in modesty.

The only advertising that is allowed in our profession is the advertising that comes through good work done, and yet it is essential for a man to have the expression qualifications which allow of his making proper and legitimate display of that sort of output. It is seldom that the inventor of anything which is really of value to the commercial world is able to develop the generalship which is required for bringing his invention properly into the market. Documents that are matters of record show that John Fitch invented the steam boat and obtained letters patent for it. Furthermore, in 1788 passengers were taken by his boat from Philadelphia to Burlington. This was nearly twenty years before Robert Fulton built his Clermont in this country, and fourteen years before Symmington's boat was built in England. Popular writers and school histories in America give credit to Robert Fulton for the invention of the steam boat. In England, Symmington is the steam boat hero. Although Appleton's Encyclopedia of Biography gives the whole story of Fitch, another very popular standard work of reference states in large letters when John Fitch was born and gives the date of his suicide, but small letters are employed for conveying the information that his first steam boat was launched on the Delaware River in the year 1787. No doubt France would have claimed the first steam boat hero after the patents of Fitch became known, but France was engaged in revoluting at that time. Germany at that time was more interested in philosophy than in material accomplishment; consequently popular credit went to only two men, to whom it was not due, as inventors of the steam boat.

Every member of our own profession is in duty bound to advertise his work, but not himself. His work is primarily

intended for the benefit of the public and of his colleagues. One meets a great many men who have false ideas of modesty in this regard, particularly in the small towns. They may be possessed of invaluable knowledge relating to different fields of work, yet not accustomed to write or to present their ideas before medical societies. Every physician should at an early age cultivate the habit of writing and of allowing the editors of medical journals and the grand jury of the profession to do all deciding about the value of his ideas. He should be magnanimous and leave it to their judgment.

One who writes may never know in what ways he serves a purpose. If his revolver is not used for hitting a mark with its bullet, the butt at least may be used by somebody for a tack hammer. For example, one day while chatting in the library of our famous friend Doctor Lauenstein, in Hamburg, I chanced to espy a copy of my little book on wound treatment. In surprise I asked, "Did you buy that? A master in the subject of antisepsis long before the book was published!" "Yes," he replied, "I used it for teaching my son English." A few days later when at dinner with the gifted and eccentric Doctor Pean in Paris I mentioned the incident as a joke. "Indeed, it is no joke," said Dr. Pean, "I also have the book, and while I take no stock in antiseptic surgery, I told one of my students who was studying English to use that book, but to be careful about accepting its ideas." Now, wasn't that odd? My English was never very good because in college days the lectures on split infinitive came on days that were good for fishing. The ideas contained in the book presented its only hopeful feature, yet that part was spurned in favor of its English. I really can write pretty good English as some of the pages in the first or second parts of these notes will prove, but it requires special effort, and my friends say that it doesn't sound like me,—hasn't quite a natural ring. Charlie

May, at the club, on reading an extract from the notes, actually asked if I wrote that myself, and we have been cronies for thirty years.

The doctor should cultivate the habit of public speaking, for it is a false modesty which keeps men with valuable ideas in the background through fear of being conspicuous. Emerson says that self-consciousness is a display of the highest type of egotism. If one finds himself timid when upon his feet before an audience, he must at once remember that he is demonstrating an offensive type of egotism. That idea will serve to stiffen many wobbly knees.

It is perfectly fair for one to take a large stand for his rights provided that he is sure that his work is to be of benefit to the public. If he feels that his life is to be devoted to private gain and personal prestige, then it might be quite well for him to remain as modest as possible.

One's highest ambition should be to be a good fellow. Run with the pack. If you can lead,—lead. If you can follow,—follow, but run with the pack in rain and in sunshine. If you have commercial tendencies and wish to make money from your profession you are not running with the pack in medicine. Leave it! Go elsewhere. Join another pack with which you can run and really be a good fellow at the same time.

The medical profession is the only one with which I am familiar in which the most efficient members are constantly laboring to bring about a condition that would undermine their own commercial interests. Their thrills of ecstatic joy come with the finding of ways for cutting whole rows of "pay cases" out of their own hands.

It is often said that we have not as many great surgeons at the present time as we had in former years. This is not true. In former years a few great men here and there at-

tracted attention because of their rarity, but at the present time with our frequent society meetings, numerous journals, and facilities for travel, a large number of great men rise to form a broad plateau which is higher than the single sharp peaks which formerly stood out upon the horizon of the profession.

The sum total of knowledge in the medical profession has now become so enormous that it is impossible for any one man to comprehend the subject, and we have arrived at the position of the lawyers, the most learned man being "the one who knows *who knows,*" and who has acquired the ability to find authorities when occasion demands. We have only recently approached this position in medicine, and few patients as yet have the benefit of our whole knowledge as applied to their cases. At the present time it is quite as much of a study to know which men are authorities on various subjects, as it is to acquire the knowledge requisite for graduation from a medical college. One of my acquaintances, the editor of an agricultural paper, planned to compile a book on the subject of insects which are injurious to fruit trees. The material which he collected became too voluminous for management, and he then decided to devote himself to the scale insects, and in the end devoted the entire book to various species of only one genus of scale insects. That is about the way in which we work in medicine at the present time.

When one first begins practice, he may feel it an injury to his pride if he is obliged to depend upon others for knowledge. After he has been engaged in practice for a sufficient length of time he becomes properly humble, and is then well satisfied to know who knows. The general practitioner of to-day has greater responsibility than at any time in the past. In country districts versatile men are obliged to cover a very large field of knowledge in order to be efficient, and while

such men do a great amount of good work, it is difficult for them to do a good amount of great work. Here and there will be found one who puts his town upon the map for the first time in its history, but this is the exception. An extremely capable friend of mine who was located in a country village was discoursing one day upon the superiority of physicians who developed in an environment in which they were obliged to meet such varied conditions. I asked him if he was referring to himself or to the three other rival doctors in his village.

In order to appreciate the difficulty under which the general practitioner labors, in rising to the new order of things in practice, we have to consider a bit the history of medical education in this country. We did not have a medical school in the United States until 1765,—in connection with the University of Pennsylvania. The Harvard Medical School was founded in 1783. In the nineteenth century a very large number of medical schools developed, but almost altogether "proprietary" schools. A group of practitioners would get together and form a medical college, with courses averaging considerably less than two years in actual time expended by the student before receiving his degree. A certain prestige went to the men who were engaged in teaching, and in order to obtain this sort of prestige other groups of men organized rival colleges; so that at one time in this country, we had thirteen medical schools in one city. Students naturally had a tendency to go to the colleges which gave the shortest course at least expense, and the result during a large part of the nineteenth century was to flood the country with thousands of badly equipped physicians, many of whom had not even a high school education in advance of taking their medical course. There were no laboratories excepting those of anatomy before the year 1870 in this country, because the expense of

laboratories seemed too great for the teachers who divided fees from students. Naturally some excellent teachers developed in some first rate proprietary schools, but up to nearly the end of the nineteenth century, mediocre proprietary schools were flooding the country with a mass of mediocre physicians, who had little technical education and less training in ethics. A three-year graded course was introduced at Harvard Medical School as far back as the year 1871, by President Eliot, but the development of the three or four-year medical course, with expensively maintained laboratories, and affiliation with some university, is a very recent matter in medical education in this country. As late as the year 1904, only four of the 166 medical colleges in the United States required more than a four-year high school course for entrance, but at the present time, 60 medical schools have required higher entrance qualifications, and six states have required at least two years of university work as a necessary preliminary to medical study. Since 1904, when the Council of Medical Education began its work, the number of medical schools has been reduced from 166 to 100, and even this number is to be contrasted with 21 in England, 20 in Germany, and 5 in France. The different states which require high degree of quality in medical education have been obliged to protect themselves against graduates from institutions in other states, in order to protect the public against men who have been rejected by good schools. They would formerly go to some low-grade school, secure a diploma, and then come back to the states of high-grade schools and enter into competition with men whose technical education and ethical training were of higher order. A graduate from a diploma-mill, were it not for this recent legal power to safeguard the interests of the community against a badly educated physician, could enter into competition with graduates from an institution in which

the annual budget of the physiological laboratory alone is thirty thousand dollars. Such competition would naturally be destructive in character, because the low-grade physician for his own protection would engage in methods of self-advertisement combined with derogation of better men. The public as a whole would not know the difference between these two classes of physicians. Since the beginning of the twentieth century, high-grade medical education has increased with leaps and bounds, giving evidence of the hopeful fact that Americans are really ambitious for the best of everything once they are shown the way for obtaining it. Very many of the successful general practitioners who were educated during the regime of the latter part of the nineteenth century are more than willing to advance their methods in practice to those of the present day. Some of them do so, but the difficulties which they encounter are apparent when we consider the character of the training which they conscientiously obtained at a time when it was not of high order. A few of the strongest men in our profession have come out of the cheapest proprietary schools. They are men with gifts plus vitality, and no one can know better than they of the struggle required for attaining proficiency upon a basis of education obtained at a time when little was known about the comparative values of different medical courses. The sons of these men are given the best education for which fathers can afford to pay.

The question is often asked by young men if one cannot obtain a practice much more quickly in a small town than in a city. In the small town one is apt to obtain a practice more quickly, but at the same time he reaches the limitations of the locality more quickly. If no pent-up Rochester confines his powers he places Rochester upon the map. It is a matter of the individual then rather than the size of his town. In the large city, practice comes more slowly, and there as in the

small town the doctor is again limited by his own limitations only. If one goes to the small town in order to gain practice quickly, with the intention of returning to the city later, it will be a mistake almost inevitably. It is a very exceptional case in which a man with the most excellent local reputation has been able to return to the city and gain any foothold. I have known many pathetic instances in which doctors having gained positions of importance in small towns have come to New York, failed to get a foothold, and on returning to their original towns, have never regained prestige because of general knowledge of the fact that they had not succeeded in remaining in the city. In the cities one meets opposition step by step and adapts himself slowly and surely to the environment. All of this is done so instinctively that the complex of steps cannot be explained, and yet it represents a fact which cannot be gainsaid. The doctor who makes a success in a small town and then moves to the city usually makes the mistake of his life. So does the doctor who removes from the city to the small town. People are curious about it and ask why he did not remain in the city.

In the smaller towns we find an odd professional feature, in physicians who are afraid of their patients. Unless they are men of strong character and convictions, such doctors may assume an attitude of toadyism toward important townsmen, who are extremely quick to notice such an attitude. Not long ago a social leader from one of the smaller cities came to the office asking me to take charge of her case in New York. I said: "This is perfectly absurd; Dr. X. of your town is a man whom you may trust, and it is much better for you to remain under his care there, than to take my time." She replied: "No, I will not allow him to treat me. He adopts all of my suggestions and I can have no confidence in a man of that sort."

Dr. H. has a first rate clientele in a Western town but wishes to come to New York to practice and has asked my advice. I tell him that the Mayos did not come here, but some of our best patients leave New York and go out to them.

While there is no intrinsic difference between physicians who practice in the city and those who practice in the country, the chances for development are apt to be greater in the cities, for the reason that one is always surrounded by men who are still better than he. (Pardon the paradox). In the smaller towns a man of superior natural qualifications is apt to become an autocrat, and becoming an autocrat, begins to deteriorate according to the rules of natural law.

The environment in which a young physician places himself is very apt to be taken as indicating the class of practice that he wishes, and some of my colleagues who on graduation established themselves in the outskirts of the city soon found themselves moulded by outskirt spirit. It was inevitable and unavoidable. If one begins practice among surroundings which are most nearly suited to his nature, tastes and education, it will be a proper move in the game. A man who is adapted to Fifth Avenue practice ought to get as near to Fifth Avenue as he can, even though he has to live very economically and maintain nutrition at some restaurant four blocks to the eastward. When first beginning practice, I opened a small office at 212 East Eleventh Street, and another one in The Cumberland, now the Flatiron Building, with one entrance on Fifth Avenue and another on the Broadway side. This was a residence centre at that time. It was my impression that the income from the Eleventh Street district would help to pay for the up-town office. A mistake was made in writing from the Broadway door address instead of from the Fifth Avenue door address, because at that time I did not realize the importance of association of ideas in such matters. The

Broadway address suggested hustle and business. The Fifth Avenue suggestion of refinement and established prosperity would have been better. The mistake was one which was persistently harmful for many years and certainly indicated that I had not just the right sense to choose nicely.

It is interesting to note the effect of our first attempt at having a building in New York devoted entirely to physicians' offices, in the year 1905. Great timidity was displayed on the part of doctors who feared their reputations were not strong enough to stand any connection with an uncustomary enterprise. Experience proved their fears to really have a basis. A committee of five was appointed for passing upon the desirability of applicants who might be admitted to the building. (Sydenham Building, 616 Madison Avenue). As a matter of fact, almost half of the first fifty applicants for office room were undesirables who wished to obtain the advantage of association under one roof with reputable physicians. All sorts of men who were engaged in questionable practice, or who were connected with the profession in some commercial way at once offered the highest prices for the best offices. There was difficulty in explaining to the owners of the building the reasons of the committee for drawing close lines, but the offices were eventually filled with men of good standing. Doctors who are most timid about their reputations are as a rule the ones who know why they should be timid, because of "inside information," but in this instance good men really would have been injured by association under one roof with some of those who applied for office room.

One who worries about his reputation knows in his heart that he ought to worry about it. The reasons are apparent to him. Furthermore he cannot help himself in the matter. Explanation serves only to complicate matters. The situation is hopeless and disheartening, nothing being left for him

excepting to continue worrying. On the other hand, one who worries about his character is in the midst of opportunities for helping himself daily, and the worry is transitory in duration.

There is a tendency always to be more jealous of reputation than of character. In the professions we are inclined to be jealous of each other and properly so, because of our high ideals, but our worry should be less about personal reputation than about personal character.

Recognition of a young practitioner comes first from intimate colleagues, and fellow workers of college days. The ones who are very close to a man are the ones best able to understand the significance and degree of his accomplishments. Public speaking and publication of ideas come next in order for giving a wider recognition, if one can make himself interesting without undue self advertisement. A reputation that endures is based upon the foundation of appreciation on the part of colleagues, rather than upon ideas gained by a professional clientele composed of the laity. The superstructure of reputation never gets far above a base which can support it.

Practice is not to come from some indefinite imaginary point as many young men in the profession suppose. It is to come chiefly through old acquaintances, and in proportion as one has merited the respect of such close acquaintances. The three greatest social powers in the world are love, oratory, and propinquity, and of these the spryest is propinquity. The young physician who places himself near to objects of his ambition, is apt to find himself drawn along without his conscious knowledge, toward the goal which he seeks.

When one first assumes the responsibilities of taking charge of human life and happiness, it is apt to make him sleepless at night. He cannot do the best work after missing a good night's rest. Realizing that fact I stopped being sleepless in

1883, when serving on the Bellevue Hospital staff as house surgeon. This is easily accomplished by one in normal health as a matter of the will, if he determines to stop all thinking upon retiring at night. It is best to take a lesson from the French doll. When one assumes a recumbent position his eyes naturally fall shut automatically like those of a French doll, and he may then remain like the doll until the next morning.

Members of the visiting staff at Bellevue were theoretically responsible for all of the people under my care, but practically my own responsibility was so great, with daily opportunity for mistakes in judgment which might cause death and suffering, that I found it difficult to rest. A little experience showed that the patients who were the cause of this worry had slept better than I during the night. An effort of the will was then brought to bear upon cessation of all thought at a certain hour, and this was accomplished without real difficulty.

We used to hear in former times about surgeons who "walked the floor late into the night" before doing some important operation. This kind of temperament is absolutely "impossible" for a surgeon of the present day. The patient should have been the one to walk the floor while the doctor was getting a good night's rest. The surgeon must be securely calm in his knowledge of what he is about to do,—or else turn the patient over to someone who is calm. Surgical work is almost certain to be done badly by anyone who carries a perturbed spirit into the operating room. Deaths are more often due to little errors in technic than to application of wrong principles.

Fame brings many complicated problems that require time for their adjustment. I would rather enjoy my pliant trout rod and the song of the hermit thrush, the fragrance of moist cedars and the beauty of a white violet in the soft green moss,

than any combination of joys which fame can bring. I would not care to be great, because that incidentally takes up much time. Greatness is desirable in nature's plan. No one admires great or famous men more than I do,—if they are honest men —but personally it seems pleasanter to allow other people to have these things which take up time that is precious for my own studies. I would rather be called plain Bob Morris by my friends, than to be known as any sort of genius. One sings in the workshop; not on the throne.

As one continues to maintain a position in the profession, the tendency is for more and more positions of trust to be placed upon him, and he must be constantly on guard against accepting too many. The desire for leadership is a matter of temperament, and brings responsibilities requiring a certain type of mind. When circumstances have placed me in positions which led step by step toward leadership, I have made an effort to escape. This plan would naturally not be followed by men of a different temperament. If a young man has qualifications and taste for leadership, duty will indicate that he follow that bent and play a most necessary part in affairs. We are always short of leaders.

The time comes when one has added so many responsibilities to his list that it is practically impossible for him to take on one more, and yet it is difficult to avoid shouldering more than he can really manage well. I find the only way for obtaining mental relief is to emulate the guinea hen, and she is now my pet symbol. A guinea hen will find a choice corner in the brush lot and soon has forty eggs in her nest. Then she sits in the middle of the nest. She cannot hatch all of the eggs, but hatches out all that she can, and lets the rest go. The lesson taught by the guinea hen came to me as a great comfort.

Almost any activity in the way of benefiting the profession

commonly means a loss in financial returns to men who enjoy that work, but they cannot expend, let us say, forty thousand dollars a year in any way which will give them as much pleasure and satisfaction as may come from losing that amount of money in work which will benefit their colleagues. That is the compensation which they will find, as other men find compensation for their labor in money gain. I have enjoyed many kinds of sport, but professional work is the best one of them all.

The business man naturally asks,—"Why do you do things that will lessen your income?" Your answer is to be—"Because a profession is better than a business." He may ask again—"Why do you not manufacture and sell a favorite prescription or pay commissions if you can make fifty thousand dollars by doing so?" and your answer again is that the profession is better than business.

Some of the health resort institutions have lately circularized the medical profession, making a point of openly or covertly offering a commission for business sent to them. Reputable physicians keep a file of such circulars, and deter any of their clientele from going to these particular resorts. They are obliged to do this for self-protection. If Dr. A. of questionable reputation hears that Dr. B. of high character has sent people to a resort from which Dr. A. receives a commission, it immediately brings Dr. B. under suspicion in the mind of Dr. A.

It did not occur to me to keep an accurate account of income until some months after the first year of practice, but the income for the first fifteen months approximately was a total of $500. The next year it was $840, the year after that, $1,490, the year after that, $2,041, the next year, $2,508, next $3,317, next $4,187, and it was not until the year 1897 that it reached past $10,000. Meantime I heard of many classmates

and contemporaries whose incomes were said to be very much greater. This was particularly annoying during the first two or three years, but I am not so sure now that the reports were from authoritative sources. During the first three years my work was largely medical, with a comparatively small proportion of surgery, and a good part of this was from the practice of older men in the profession, who transferred some of their work when away during the summer on vacations. One may be quite sure that his smallest income will be at a time when he is doing the hardest work, and the character of his work by no means determines the size of a fee in his earlier years. After one has acquired a reputation, he may command thousands of dollars for work which might be considerably better done by some of the younger men of small fess who are just coming into the field, but whose work has not been found out as yet. What the public and the profession demand is knowledge that a man has escaped all of the pitfalls, has adapted himself to surroundings, and has so conducted himself that the sum total of his character and of his work makes a high average. It is this sum total upon which men of experience in the affairs of the world base their calculations when judging any one doctor, because it corresponds with their own experience in other matters in life. In medicine, as in law, or any other profession for that matter, what is called success by the public by no means indicates that the man has great learning beyond that of his fellows. Some of the most learned men whom I know in our profession have scarcely been able to make a living, and others with a comparatively small outfit of book learning, have been very successful from the worldly point of view. When a young man upon graduation from the medical college is given his diploma, he is simply handed a lottery ticket for which he has paid several thousand dollars in money, and several years in time.

The Lord only knows what his lottery ticket is going to draw. Statistics were taken recently of a class graduated from one of the medical colleges, ten years after graduation. I cannot put my hand on the note which was made for accurate quotation, but approximately 40 per cent. of the graduates had dropped out of practice at the end of ten years, and of the remaining 60 per cent. who remained in practice, some were supplementing their incomes from sources outside of the profession. A few had good incomes and occupied important positions in the profession from a professional viewpoint. One must distinguish between the professional viewpoint and that of the public. The factors which go to make up success from the professional standpoint cannot be stated exactly because they are complex, but first of all stands character, then executive ability, then learning, and after that special adaptability for proficiency in some one branch of work. For success from the point of view of the public, we may still place character first, next a pleasing personality, next executive ability, and learning last of all. A man who naturally has a pleasing personality and executive ability and who summons good authorities to his aid, may get on famously with very little learning.

In times past the expense of employing a doctor has been looked upon as something out of hand, and not belonging to fixed charges of a household. As we progress in cultural development a fairly large part of the annual income of the family must be definitely and increasingly devoted to this expense account. The microbe will make more and more demand for its legitimate prey.

It is curious to note the slow, gradual, but almost even, regular increase of my income. Speaking of this with a business man one day, he said, "That is precisely the common experience in business. Men have great ideas and imagine

there is to be a sudden and notable increase in their incomes, but when they count up actual figures they find as a rule that the increase has been slow, gradual and regular." It is probable that doctors' incomes are not very different from lawyers' incomes in a general way. The secretary of the Harvard Law School recently sent out letters of inquiry to seventeen hundred men graduated from the Harvard Law School during the previous ten years, and replies were published in the Harvard Law Review for January, 1914. The average net earnings of six hundred and ninety-four graduates were six hundred and sixty-four dollars for the first year, and from then until the tenth year an increase of about five hundred dollars per year is noted, the average remuneration of one ten years graduated being five thousand five hundred and twenty-five dollars.

Does dishonesty pay? It very often does in dollars, but not in the things for which dollars are supposed to be wanted. There are very few men honestly earning an income of from two to twenty thousand dollars per year who do not know quite well some ways for doubling that income if they wished, through little acts of dishonesty. It would destroy their comfort and peace of mind, and that is theoretically what men wish dollars to bring to them.

I have watched the ascent of a great physician from a basis of small education, and the descent of a quack from the basis of large education. A. was left helpless on the death of his father before he had finished a high school course. He at [illegible] entered a drug store as errand boy and general helper [illegible]der to pay his way through a two years' medical course [illegible]e of the cheap proprietary medical schools. Upon receiv[illegible] his license to run amuck among sick people, he perceived the need for real knowledge as keenly as he had previously perceived the need for self support. He attended clinics and

society meetings, sought opportunity for assisting skilled doctors, read the best authors and conferred with consultants whenever he had a case of any consequence. He has gradually risen to a place of high position in the esteem of his colleagues and clientele. B. was given an expensive medical education of the best, and developed a good deal of proficiency in several lines of work. His concepts were often peculiar, and he propounded ideas which were not acceptable to colleagues at medical society meetings. They were very attractive however to laymen who knew nothing about the subject. As a man of much vanity B. felt hurt at the attitude of his peers and gratified by the attention bestowed upon him by the laity. He said that doctors and their societies could go to the devil and he thanked Heaven that an intelligent public knew more than a benighted profession. He has made a marked financial success (having advertised extensively and fraudulently), notwithstanding the fact that he has killed off many of his best paying patients.

We must always remember that the really precious things in life are the treasures of our thoughts. Dollars simply constitute a basis for exchange of various things, and may have far less value than things which are exchanged. At times in his dreams the business man of fortune, with complicated responsibilities, imagines himself to be a fancy-free professional man, with time for thought in lines of learning. At times, the doctor of small income fancies in his dreams that he would like to be the business man of complicated affairs and large income. Each wishes that he were the other, but realizes that his wish represents nothing more than a pleasing dream.

In discussions over the necessity for a code of medical ethics, it is often said that gentlemen do not need such a code and others will not follow it. This is not quite true. Many

doctors, particularly young men, who are ambitious to become the very best of men in their profession in every way, may have been instructed by teachers who did not present to them the best of examples in ethics. When they see a statement of principles in print, the mere suggestion leads them to revolve in mind certain formulæ relating to the gentleman in the profession. Thank God most young men have a natural desire to be fine!

At least two or three generations of polite family environment are commonly necessary for producing men with true professional spirit, but nature in order to prevent too rapid progress, finds it best to set influences of decline at work. We then have men who are well qualified for an exhibition of true professional spirit but lacking that incentive to work which is found among those who are not at all sure of their social position. The latter struggle valiantly, making use of every means according to their lights for getting to a point where they and their descendants will in turn be in danger of meeting with nature's cultural limitations. We thus have an ever-changing mass in the professions, following the same laws of flux as those which regulate the development and senescence of protoplasmic combinations in general.

What is the doctor's social position? That depends largely upon what he wishes it to be. There are three chief social sets in all civilized countries under present methods of organization. The doctor will join any one of the three, according to his taste and training. The fashionable set consists of people who have "passed up on their examinations" in theoretical morality, and having passed these examinations are then free to do well or badly as they please, knowingly. The criminal set consists of people who have not taken up studies in theoretical morality and who feel free to do as they please, ignorantly. Civilized society has only one dominating

perennial fear, and that is its fear of ignorance, because ignorance causes all of the great distress in the world of men. A sculptor wishing for a master vision could make an heroic demon *Ignosco* who is engaged in placing his hand over the eyes of those who are trying to see. Human society does not worry very much about crime, because its members have all experimented with it in mild doses at least, in order to see how it works, and to become familiar with its mien. They know pretty well how to establish methods for protection against crime, but ignorance makes the best of men stumble and blunder. When Napoleon ordered the execution of the Duc d'Enghien the act was spoken of by Fouché as being "worse than crime,—a blunder!"

The third social set is the exemplar type set. This set is busily engaged in research work, trying out all problems of mores, and presenting reports from time to time. The exemplar type set is nature's favorite in all forms of organic life. Her substantial rewards go to that set. To young men particularly,—to those who are in a state of unrest in response to nature's urge toward variation, I would call attention to the fact that the most durable satisfaction will consist in remaining in the front rank of the exemplar type set. The variants who obtain renown through crime or through art are placed in the elimination class by nature. They may accomplish great things while they are at work, but they are uncomfortable much of the time as a rule, and their family lineage is soon brought to an end. If the best that a doctor can do is to make display, then the fashionable set offers a field. If his intelligence is not sufficient for allowing him to make an income without engaging in criminal procedure, then the criminal set offers to him the best outlook. If he is interested in lending a hand to nature in working out human problems,

then the exemplar type group will constitute his setting. The higher he is enabled to stand among the exemplar type men, the higher his real social position.

If one feels in duty bound to devote his life work to serious matters in a large city, he must draw the line rather arbitrarily on social enjoyment. He may see trusted friends occasionally, and have the satisfaction of being in touch with big things and big business,—a sort of stimulation which is always desirable. I asked the brilliant wife of a popular public official how she managed to escape social bondage and devote herself to the many utilitarian occupations in which she was engaged. Her reply was, that the only feasible way consisted in making one's self as uninteresting as possible to everyone excepting those who were loved.

There is a nobility group as opposed to the opportunist group among doctors, engineers, statesmen, lawyers and the clergy. The nobility group in the medical profession holds that secret division of fees is betrayal, for purposes of money gain, of people who have put confidence in their doctors. The origin of this form of betrayal of trust lies in the conventional tradition that a physician should not charge as much for his responsibility as the specialist charges. The conventional victim of fear-thought does not dare to charge properly for his services, but desiring money nevertheless, becomes an anti-climax hero by asking for it through some opportunist specialist, who sees at a glance his chance for making an useful retrieving spaniel of the timid physician through suitable petting and reward.

I asked one of my assistants who was returning to his home town in Canada to engage in practice, if fee splitting prevailed there. He replied that it was not directly a custom, but he knew of a first rate surgeon in a certain city not far away, a teacher, who split fees and even paid commissions to students

who sent cases to him. It had resulted in his obtaining a very large surgical practice.

This institution identifies itself and lends its backing to an example which is thoroughly demoralizing to young men. The teacher might better inoculate each student with smallpox. Is there any graduate from this school who will not start wrong in his merciful occupation? Few will escape. Some young men with good fathers and mothers will have been taught high principles, but many an ambitious graduate without inspiring home influence will note a short road to financial success. Who could blame him?

My assistant said that he himself had planned to give twenty-five dollars to the physician who sent him a case, but this physician was to administer the anesthetic. I asked if this was not in the nature of a bait and if the patient and surgeon were sure to have the best anesthetist procurable. The bait question always furnishes a criterion for judgment if one is in doubt about his rectitude.

Another point which my assistant brought up related to a practice in his town of the doctor who knew little of surgery asking a more expert surgeon to assist him and then dividing the fee. I asked if such a procedure would not be inimical to the patient's best interest. It would at least be on the borderland of unwise procedure, and I informed my assistant that he should not take part in that sort of work if he wished to retain his dignity. Furthermore, he would be held responsible for bad results. This young man had been impressed by the large practice of the immoral teacher at the college. We must remember the biblical warning to one who harbors certain kinds of people. Any institution which harbors a prostitute in the profession is sending out disease with practically every graduate from that institution. His crafting is talked about among young men. His financial success is noted

by them in comparison with that of honorable men. When income is slow they say to themselves, "Perhaps I must do as he does or get left."

In every community there are some discerning laymen who know the difference between types of professional men, but the public as a whole does not know which way to run. Does it even know the difference, in affairs of state, between a demigod and a demagogue?

A profession is as high as its highest men who avoid decomposition of character, and no higher.

At the present time the legal profession is undergoing a rapid change toward commercialism. Corporations are taking charge of the larger part of litigation. Corporations, according to an established by-word, have no souls, and the ethics of the legal profession are disregarded by impersonal firms which divide up work in the office, leaving the nice department of soul to a silent partner. My idea is that the taking of commercial business from the individual lawyer really allows him to escape from the danger of his own commercialization. It seems to leave him free to enter new and original fields of litigation which have not as yet been taken up by corporations. If doctors are now to enter entirely new fields of practice, and with more practice than at any time in the past, it is not improbable that the legal profession may find parallel opportunities. This part of the twentieth century is marked by a readjustment in both the medical and legal professions. Perhaps there has never been a time in the history of the world when greater need existed than right now for the physician or for the legal solicitor who is guide, philosopher, and friend. That being the case, the readjustment will eventually give us what the people need. Readjustment in the clerical profession will soon follow. The pastor who is guide, philosopher and friend, is needed more than ever before. He will cast off

superstition from his best teaching, and will show us the glory of God and of Christ in their true forms, as works of man. Myth and miracle will have to be retained, however, but held in reserve for employment with certain types of mind, very much as we are to retain fairy tales for children. I believe that honesty will eventually pay the clergyman as well as it now pays the business man. He will not "hush up" information given him by the scholars when he gets to realize that such action prejudices the very men who are now most needed by the church.

Tempora mutantur et nos mutamur in illis. The ethical standards of the "three learned professions" are to suffer during their present transition stage. There has been a sort of revision of ethics downward, and this has had for its corollary the substitution of the economic motive for the sentimental. In times past, away back as far as to the days of Herodotus and Thucydides the sentimental motive guided men toward glory. During the first thirteen years of this present century glory has been put into cold storage for awhile, leaving its defenders free to doff their coats and get a living out of life. The layman has already been benefited by the change in methods of the legal profession. He has been harmed by changes in the standards of the medical profession. He will be benefited by changes in the clerical profession. Eventually members of the "three learned professions" and their lay clientele will be benefited on the whole, because human interests are inseparable from interests of men who exercise chief controlling interest over them. The changes which are now taking place for readjustment of the times will bring their own solution of questions which relate to standards of intellect, character and feeling, and the "three learned professions" will then rest upon a firm static basis until such time in the course of progress as it becomes necessary to make further "changes

in their constitutions." Great changes in the methods of the learned professions do not take place so rapidly as they do in business or in the sciences, because their principles are like those of the Constitution, in the respect that they serve as fixed points from which activities extend. It is only when tension becomes very great as a result of traction by large new movements that professional principles are changed, and the process must be conducted rapidly, with more or less disarrangement and disorganization of "traffic" until new structures are completed.

Changes in the medical profession have been more dramatic perhaps than in the legal profession during the past two decades. As a result of the great activity of physicians in cutting off their own sources of income, through preventive medicine and the employment of vaccins and antitoxins for example, a great many of them found it difficult to support their families. The higher order of mind which led to these changes by men who make advances, liberated a lower type of mind on the part of another group of physicians. From the noble protector standing guard some of them reverted to the jackal type,—took to sheep killing and eagerly followed the trail of every patient who could be hunted up and sent to a commercial specialist, who would divide the fee. In former years practically every family physician stood as protector over every interest of the patient, and when he was impressed with the necessity for sending a patient to a specialist, he commonly persuaded the specialist to accept a smaller fee than was deserved. "This is a friend of mine," he would say, "and I wish you would let him off easy." Under the new order of things the instinct of protection to members of a clientele was changed into an attitude of persuasion which would lead the patient to pay at least full fees.

Twenty-five years ago most of the capital surgery was done

by the masters. Now most of the surgery is being done by those who hope to be masters some day, but who do not take the time and trouble to perfect themselves. It has been found to be unnecessary in fee splitting circles. The situation at the present moment in surgery in America is similar to what it would be in engineering if apprentices had suddenly discovered a way for diverting work in their direction instead of allowing it to go to the masters. Many of the apprentices in surgery after losing a good many patients, and having a large morbidity rate, feel quite sorry about it. The public has nothing to say. The public will have something to say when it awakens.

In connection with the destructive tendency of a certain part of the profession to engage in fee-splitting there was a compensation, as usual. Very much more surgery was actually done and more patients really requiring surgery received benefit than would have been the case if their physicians, busy with other work, had left them "until to-morrow." It is not improbable that a bad movement had on the whole a result which would add up to the good, notwithstanding the unnecessary surgery, or surgery by incompetent operators, which was incidentally done. Fee splitting has never been done by surgeons of the first class or by physicians of the first class. One often wonders why people give over their lives and their happiness into the hands of men who are not fit for assuming such responsibility. The people do not know. They hand over their physical welfare to all sorts of people to whom they would not entrust their bank accounts for an instant. It must be indeed difficult for the people to know at times, and this was impressed by an experience when a young married couple asked me to find for them some good dentist who would be very moderate in his charges. Time is time for a dentist, and he is not at liberty to be as generous as a physician. When

making inquiries in behalf of this young couple among dentists of standing, they told me that if any of the older men had time to spare there was some good reason for it, and if younger men of good qualification were not yet established they hesitated about recommending such young men until the latter had been tried out. It required a good deal of time and attention on my part to find a dentist to whom I could send these young people; and if I had so much difficulty, considering my rather intimate knowledge of professional men and their ways, one may readily understand the greater difficulty which a layman would have in finding a responsible physician in whom he might comfortably repose his confidence.

CHAPTER II

In the later eighties, I had about determined to make my work exclusively surgical. Some of the leading surgeons in New York were asked their opinions of the plan. There was no surgeon in New York at that time who did not add a considerable amount of general medical practice to his work, and I was the first one in New York (probably in the whole country) to determine to give up all general practice. Dr. Stimson told me that he had always considered surgery-exclusively to be an ideal sort of practice, but he did not dare to give up general practice in addition. Dr. McBurney said that some of the most interesting part of his work was with families who depended upon him, and that he doubted if any one could devote himself wholly to surgery. Dr. Bull said, "That would be very interesting, but you will have to get your bread and butter out of medical practice, taking such surgery as gradually comes your way." Dr. Bryant said, "In my opinion you cannot gain the confidence of people sufficiently to get surgical cases unless you first secure their confidence through successful medical practice." Dr. Charles Phelps said, "It will be many years before your time could be filled with surgery. There will be some consultations with men of your own age, and they will also ask you to do some surgery, but they cannot have the class of practice that will furnish an income sufficient for your support." Dr. Fluhrer said, "I would like to devote

myself to surgery, but those of us who are engaged in that work are not fully occupied with it. The work is so divided that we are obliged to take general medical cases." While considering seriously this advice from men who stood among the first in authority, and gradually finding that my surgery, if properly studied, really filled all the time, particularly if experimental work were done, the idea of the desirability of doing nothing but surgical work continued to grow. A climax came one night when I had been up until four o'clock in the morning on a parturition case and had a difficult gall-bladder operation to do at nine o'clock in the morning. It was done rather badly and tediously. From that moment the decision was made never to take another medical case of any sort again. This was in the latter part of 1889. How times and customs have changed since then! Hundreds of men are now devoting themselves exclusively to surgery in its different branches, to the exclusion of all medical work. As late as 1889 at least, only one man apparently believed that it could be done. Had I cared for the financial part of the work or had there been a family to support it would not have been a safe procedure, but it made very little difference then whether my income were one thousand dollars a year, or fifty thousand a year. For that matter I have seldom cared since that time about income in any personal bearing, because there is as much fun and work to be had upon three thousand dollars per year as upon thirty thousand per year. Having experienced both of these incomes, I feel competent to express an opinion. The desire for large income is a little vanity trick of nature's, which she plays upon us in order to keep us evoluting without regard for any discomfort to which we may be subjected in this matter. I have always looked up into nature's face, laughed, and winked one eye at her. She made no response. We understood each other. Some-

times, for days at a time, my work would be at the Academy of Medicine Library, disregarding practice and being out of the office during office hours. It was my belief,—which was correct much of the time,—that nobody would come in. That was very wrong. A young man should have a definite office hour, and always manage to be there, particularly during the very earliest days of practice. It is far more important then than in the later days, when people feel they are not sure to live unless they succeed in getting a certain doctor to look after them. In the early days of practice a number of friends in the profession in the smaller communities at a distance from New York would occasionally send for me. Trips requiring an entire day of time for a fee of perhaps twenty-five dollars beyond expenses, were often taken. Sometimes I did not even get that fee when cases had been cared for on the ground of their being interesting and valuable in the way of experience. At times it happened that even small fees were not collectable, and occasionally railway fares and expenses had to be paid out of a pocket that needed to be securely stitched at the bottom in order to prevent a single dime from slipping through. Young men with ready-made incomes buy easy chairs.

In those days surgery was done chiefly by two different classes of men. Practically all of the pathological surgery was done by masters, who had given themselves opportunity of position in order to perfect themselves in operative work. The general practitioner confined himself to emergency cases, and to certain kinds of ordinary work not requiring the technic of an expert. Since that time we have entered a transition stage. Hundreds of small hospitals have been erected in various parts of the land, and this fact as a fundamental general proposition stands for progress. Simultaneously with this development of the small hospital, several traits of human nature came strongly into evidence. A certain

prestige is popularly supposed to inhere in operative work, although this is a mistake belonging to the present crude stage of our cultural period. In response to this popular misconception at least one half of the men on the average hospital staff feel it incumbent upon them to obtain the éclat that goes with operative surgery. Two results follow. Here and there a man of great natural talent and mechanical ingenuity becomes ascendant and a valuable addition to the ranks of surgery, but most of the operators, reaching their limitations quickly, bring discredit upon surgery as a whole. My good friend the late Dr. Maurice H. Richardson said it was a misfortune that so many people recovered from surgical operations, no matter what was done to them. It is the morbidity rate, rather than the mortality rate, upon which we are to fix attention when a question of the present day abuse of surgery is under discussion. The moral side of the question seems to me to be this: Anyone who has passed State requirements may have a right to take up surgery, provided that he gives himself the best preliminary training within his power before attacking pocket books, knife in hand. His duty is, then, to devote himself closely to the subject, with elimination of all other work as rapidly as it lies within his power to do so, and with no intention of continuing to do other work in connection with surgery. Even this assumes that the question is to be worked out along lines of natural competition, but the state should take charge to a far greater extent than it has done up to the present time. The state should standardize the surgeon. The state is the chief sufferer from the present-day abuse of surgery, and if the matter is really taken in hand in a modern way laws may be enacted which will require years of apprenticeship on the part of anyone who is to engage in operative work. The state will prescribe his course of study and of technical training. Members of the medical profession, like all other organic

objects when left to their own inclinations, follow the natural laws of competition,—with the public as chief victim in this case. The chief victim, awakening to a realization of conditions, will probably place surgery again in the position which it occupied thirty years ago, in so far as it relates to individuals who are to do special work.

No one can realize how much time, pains, mistakes, imagination, mental distress and money have gone into the making of an experienced surgeon. Part at least of these things are avoided by men who are now swarming into surgery for the reason that they have not been able to keep up-to-date in the course of the rapid evolution of internal medical practice. The men who have been "drifting into surgery" in shoals are the ones who lack the skill and knowledge requisite for doing new high-class medical work.

The surgeon must not only learn at the outset of practice if he is really equipped by nature for becoming a surgeon, but he will be obliged to learn by self-analysis the particular sort of surgeon he is likely to become. Is his forte the discovery of basic problems and the formulation of principles? Then research work of philosophic character will engage the latent tenths of his brain capacity. Does his mechanical talent make him the skilled technician by nature? Then skilled technician he will be in the end. Is he an essayist who makes critical analysis of surgical principles, as he notes their application to pathologic findings, and records his observations in the field of applied surgical science and art? Then he will be a publisher of contributions for the benefit of his colleagues. His mind may have scope sufficient in degree for comprehending all of these features of surgery, but time limitation will confine him rather closely to the development of those natural personal talents which belong in some particular field of surgical work. If he has a generalizing type of mind and organ-

izing ability he may depend upon assistants to work out (under his direction) most of the features of a full surgical training, excepting those of skill and technic, which are peculiarly personal matters. Is his interest one of pecuniary nature, and desire for fame? Then he will make neither fortune nor fame, for these are incidental to the recognition of his ability on the part of his peers. In the pecuniary interest class we find what might be called a rather unsatisfactory group of men who add surgery to general practice. Their hearts are not so much in the progress of surgery as in the economic progress of themselves. We find some very excellent surgeons in this class, to be sure, because personal interest is a stimulant of primordial origin and no mean degree of power.

I have asked perhaps fifty members of my class at the Medical School about medical conditions in their own towns. The reply has been almost a stereotyped one. "Everything is all wrong in our town. Almost every doctor thinks he is doing surgery but no one is devoting himself to the subject in such a way as to become properly trained and informed."

I asked a clever surgeon in a city of about one hundred thousand inhabitants about the present conditions in his locality. He replied, "two or three of us who have taken the trouble to prepare ourselves for surgery have all that we can do, but that represents only a small part of the surgery that is being done in this town. By far the larger part of the operating is in the hands of men who don't know when to begin nor when to stop with a case."

A breezy doctor all full of ideas came into the office one day to discuss some of the features of my clinic at the College, and his conversation ran something as follows: "Say, your work is all right, but you ought to see Joe Price of Philadelphia. He uses fine silk for ligatures, and it will hold better than your catgut, beside being safer in many ways. His suc-

tion drainage is more dependable than the drains which you employ in abdominal work. He is a wonder! He has had a run of more than fifty pyosalpinx operations without a death. When I get back home I am going to do a lot of this work—lots of cases of that sort in my part of the country that are neglected because no one has taken the trouble as I have to get out and run around to see you men at work. I am going to get a hospital started in our town, because it makes things easier and better for patients and doctors." Some four or five years later we again met at a society meeting, and my friend was asked how he was getting on with his abdominal surgery. He looked surprised for a moment and then said: "Oh, I am in pediatrics." My response was: "How is that? You told me of the inspiration of watching the operations of our Philadelphia friend and you were going to carry his ideas into your work." To this he replied: "Now, say, that fellow is a faker, and I am sure of it. Don't you believe for a minute that he had fifty pyosalpinx cases without a death. Why, it just can't be done! Look at all of the adhesions that interfere with doing the work, to say nothing of peritonitis. I tried three cases. In the first one I got into some kind of a bowel before I had hardly begun the operation. The next case turned out to be one of cancer, and you couldn't tell the difference before getting in and doing a lot of damage and no good. Think of having to tell the family! The third case was absolutely inoperable, but I opened the main abscesses and the patient got well in about a year. Whew! No sir! It's pediatrics for me, and I don't take any stock in these reports about fifty pyosalpinx cases without a death. It can't be done unless you select them to make a showing, because a good part of them are inoperable anyway on account of adhesions, and nothing is said in these reports about cancer and ovarian abscess and appendicitis and things like that turning

up, when the signs are all those of pyosalpinx before you begin."

Men may unconsciously deceive themselves in regard to their motives when engaged in general practice including surgery. One of my family-doctor friends who has a first rate natural gift for surgery said on one occasion: "I do not do any surgical work excepting for those who cannot afford to employ experts." At another time, forgetting his first expression of opinion, he said, "Surgical cases that I get here are about the only ones that bring in any ready cash." These two statements are somewhat conflicting. The man who made the conflicting statements is one of my ideals in the way of a high character with honest conviction. Under no circumstances would he attempt to deceive or to mislead anyone else, yet he was deceiving himself, because the two motives had become inextricably mixed without his conscious knowledge. Although he is a man of strong and competent will, the ties which bind him to his clientele in general practice are such that he has not quite sufficient will for severing these ties and devoting himself exclusively to surgery, which he would do exceedingly well. His generous and gentle ways and delicacy of sensibility have endeared him to so many people that he cannot think of breaking these ties. Under the circumstances he can only do surgery "pretty well." Doing surgery "pretty well" does not suffice when human life and happiness are at [illegible]ke.

[illegible] is a mistake at the present time for men who are engaged [illegible]neral medical work to attempt to do surgery, unless expert [illegible]nce is not to be obtained. Surgeons who are engaged [illegible] special work exclusively never feel that they have [illegible] anything like perfection. Human life and happiness [illegible]very direct connection with the degree of perfection [illegible]uired by a surgeon. Hardly a week passes that some

case does not appear in which I would like to try that case over again just once. Lord! how we would like to "do some cases over again just once"! Hardly a month passes that I do not keep somebody in bed too long because of some fault in technic or because of shock due to unnecessary time expended at the operation. A more expert operator would have done the work more quickly or efficiently. Sometimes a life is lost, or some permanent defect left which would have been avoided had I known just a little more. Some of my patients are not relieved as they would be were someone else in charge of their cases. One may divert his attention from surgery for purposes of recreation—that is desirable indeed—but for purposes of mingling thought of medical cases with thought of surgical cases—No!

One of my friends who does occasional surgical work along with general practice is not particularly talented in surgery, and never would do really fine work even though he were to devote himself wholly to the subject. He has built up a very good general practice because of his first rate general education, and because of a genuine sociability with people whom he holds in high regard. His ideas are almost wholly commercial in tendency, and he frankly admits it, and has told me that he ought to have gone into business instead of into a profession. He never treats one of the poor without making him promise to send some patient who can pay, and would split a fee so quickly that one could almost hear the fragments hum. He will not have a great amount of surgery to do, because too many people are familiar with the fact that he is not proficient in that field, but whatever surgery he does obtain will be on a basis of its financial possibilities, without keen regard for the interests of the patient.

On occasions when I have wanted to "try a case over again just once more," it may be said that some "physician and

surgeon" who was engaged in general practice might have done the work better in the first place. That may be quite true, but the principle remains unchanged. We are just at present amongst rapidly changing conditions. Internists have seen their old line of "profitable illnesses" drop away as a result of preventive medicine. They have not as yet adapted themselves to the idea that preventive medicine, which is saving the double rose, is in that very fact introducing great new questions in diagnosis and therapeutics which will require keener interest, wider knowledge, and more detailed attention than are required for surgical cases, in which judgment and manual technic are the chief desiderata. Doctors do not as yet know what it means to trace a case of neuralgia or of high blood pressure to its protein (in cases in which high blood pressure is due to such a cause). They have not planned systematically to hunt out a specific reason for the development of that poison.

During this transition stage general practitioners have not as yet adapted themselves to the idea of charging by the case, instead of by the visit. How can people know unless we teach them? "Doctor" means "teacher" in direct descent from the derivation of the word. The doctor is not a teacher when he allows the people to tell him what they think they want. They think they want some simple surgical operation which will decapitate the demon of all their ills. They think they want to slip a silver dollar into the doctor's pocket to pay for his visit, and have him pleased and surprised when he finds it there. The doctor is not a teacher when he allows all this. He is not a teacher when he trims his sails to what the people think they want, and as a result personally profits through his own prudence. Prudence is a sort of universal solvent for hard lumps in rectitude, but the hard lumps are diamonds and rubies.

A doctor who felt very self-sufficient once asked me if I thought he ought to assume the role of general distributor of cases that came to him, sending each one to the best authority instead of keeping it for himself. The reply was that I myself acted in that sort of capacity. In the early days of practice while feeling a way to the best field of action, my work included all kinds of cases. In the field of ophthalmology there were cases of cataract, strabismus, glaucoma, and in fact almost everything in the way of eye work, and the results were pretty satisfactory, but it was evident that one could not comprehend the whole of any field and do thorough work without dropping most of the other subjects and sending these other patients to authorities upon their respective requirements. Consequently my eye work was given up on moral grounds. If one lives in some part of the world in which experts are not available in any special subject, then he has the moral right to do that sort of work without help—otherwise not. In nose and throat work, I devised several procedures that seemed to be ingenious, but other men could take better care of the cases, and they were sent to these men. Much attention had been given to developing orthopedic surgery, through a natural bent that goes with Yankee mechanical instinct; but it seemed best to drop this special work because specialists who did nothing else could do better for my patients. Genito-urinary work was extremely attractive, because of my two wonderfully clever teachers in that specialty. It is so closely related to and involving so many of the principles of general surgery that it was the last special subject from which I cut away, although some of its operations belonging to general surgery are still enjoyed and accepted. The field of neurology and psychiatry was particularly fascinating to me because of its speculative side and its bearing upon certain phases of pathologic surgery. It was difficult to give up

medical practice, for the reason that every doctor forms a circle of patients who have confidence in him, and who believe that he can do better things for them than anyone else can do. He himself believes that he can do certain things for some of his old patients that no one else in the world could do for them, because he understands them so well. A surgeon must, however, separate his applied work entirely from its medical side, provided that he practices in the city, because his time will be absolutely taken up with special work as soon as he has found his position. It is altogether a moral question, on the whole. Anyone who plans to take up a specialty should do all kinds of work at first. Anyone who has the intention of devoting himself to surgery should have an apprenticeship in all specialties at the outset, even though he will do work for his patients that is far from the best at that time. The "occasional operator" seldom has a right to do any surgery, provided that he lives where skilled men are already in the field; but he has the moral right to do this provided that he has given himself the best possible equipment, and provided that he has a definite intention of working toward the practice of surgery exclusively. Under such circumstances his failures and accidents will be legitimate, and the public which suffers in part is on the whole the gainer from his presence in the end. If an "occasional operator" has eight recoveries in ten cases of pyosalpinx, it seems to him like a result of which he may be proud or even boastful. This is one way of looking at the matter. The other side would be this. The loss of two cases out of ten by an expert operator would be a twenty per cent. death-rate, and this would mean such a fearful mortality that it would be a matter of very unfavorable comment at the present day in the higher professional circles. The saving of eighty per cent. of his cases by one operator is looked upon as a triumph, and the losing of twenty per cent.

by the other is looked upon as a disaster. Yet both these men are at work right now in large numbers, at this very minute. Even when one has become highly skilled in the surgery of some special field there are many cases that he does not manage in the best way. This proportion slowly becomes smaller and smaller. Mishaps and unfavorable results are not so commonly the result of error in application of principles, as of neglect to apply minute points in technic. Ten thousand people have died after well conducted operations because of some trifling ligature fault. If there are 150,000 doctors in the United States and each one of half that number knows of a single instance in which fatal hemorrhage has followed some ligature fault, my estimate of the number of deaths in this connection would appear to be conservative. Ten thousand people have died because a drain was not arranged for best mechanical efficiency, although the leading principles were well observed by the operator. If there are 150,000 doctors in the United States and each one of only ten thousand of them knows of a single instance in which fatal complications have followed defective wound drainage, one may imagine that the sum total of deaths from this cause is at least large. Just a little of the "fine Italian hand" here and there gives the artistic touch that brings success, or turns the course toward unfavorable results. In abdominal surgery, for instance, one must cut down his percentage of mishaps a very little year after year and lessen his death rate at least half of one per cent. a year, for many years consecutively. It is very much like the business man's way.

The necessity for experience in operative work is appreciated by every surgeon who finds himself employing some bit of experiment in almost every operation. If these experiments are of high order, the chances are that all will make for the benefit of the patient, but unless they are based upon previous

experience any one of them may go wrong, and jeopardize at least the morbidity statistics.

The amateur in surgery likes to quote the examples of those who began work with small and poor equipment, but who finally arrived at positions of renown. He feels that he must begin at some time just as these few men whom he quotes began. There would be a great deal in this excuse were it not for the fact that full opportunities are now given students for becoming proficient. In former times such opportunities were difficult to obtain. In Germany the Prussian Minister of Public Instruction has addressed to the medical councils the suggestion, on which they are expected to take authoritative action, that the right to use the title of specialist be restricted to those who have had a requisite amount of post-graduate training—three years as a rule—obtained at officially recognized and approved institutes or under approved specialists. In Austria a similar ruling has been submitted to the profession by the Ministry of Education, with the additional provision that no one is to be recognized as a specialist in more than one branch. No one should be permitted to do surgical work unless he has a special license, but in this country the time has not as yet arrived for the state to take cognizance of what this means. We are to have a gradual readjustment. There is no more valuable man in the community than the well-trained honest family physician, no man is more secure in his position, or less envious of the specialist, or more needed at the present moment.

The education of physicians is becoming a very expensive undertaking. In former years, a few months at some medical college, and two or three years of apprenticeship under some older practitioner sufficed for preparing a man for beginning his occupation, but at the present time, a student commonly spends three or four years in his literary or scientific course,

then three or four years at some medical college and two years in hospital service before attempting to engage in practice. In addition to the eight or ten years of preparatory work the student often thinks it best to spend a year or more in foreign countries, in order to become familiar with the work in such countries before taking charge of a clientele here. This is only one of the many changes that have taken place during the thirty years of my work in practice. Thirty years ago the subject of anesthesia was almost in its infancy and there were few places in the world where one could have the refinements that are now furnished by the special anesthetist, with his expert knowledge and proficiency in applied science. Cocaine and local anesthesia were at that time "being discovered." It was well toward the end of the nineteenth century before the influence of men like Bennett in New York had resulted in placing administration of anesthetics upon the plane of a high-class specialty. Gwathmey's History of Anesthesia shows that Americans have stood in the forefront of progress in this field. During the past decade skilled anesthetists have become abundant, and the natural rivalry in this subject between educated men is bringing out inventive talent which may revolutionize our ideas of the present decade within the next decade. The X-ray had not been thought of thirty years ago. Antisepsis and asepsis were just beginning to gain a foothold in this country, and few of the present younger members of the profession know anything about the violent controversies over the subject of antisepsis that kept the profession in a turmoil at that time. Gynecology and orthopedic surgery were fairly under way as specialties, but the eye, ear, nose and throat furnished about the only subjects recognized as presenting legitimate fields for branch work to which one might give his entire attention. A few men were devoting themselves to dermatology, but that usually included syphilis, and syphilis

incidentally includes pretty much the entire field of medicine. Vaccination as applied to infections belonging to the field of surgery was wholly unknown during my student days. At that time vaccination was applied empirically for the prevention of smallpox only, and its employment was based upon an accidental observation which had been made by Jenner. Now we vaccinate understandingly, not only to prevent many kinds of disease, but also to control several of the infections after they are under way. The subject has developed with such rapidity that thousands of well educated physicians have been too busy to comprehend the subject, or to foresee the new fields into which vaccination may extend.

During the present stage of our progress much harm is being done by the indiscriminate or ineffective employment of this resource of tremendous power. Vaccination means briefly a planned introduction into the body of a certain kind of protein which can cause a certain kind of disease. This particular protein which the doctor introduces has been previously prepared in such a way that it does not quite cause the disease, but serves to wake up the body cells which have the responsibility of looking after that particular kind of disease. The aroused body cells immediately prepare ammunition in the form of a ferment which will destroy the kind of protein which the doctor has introduced. This ammunition is subsequently kept in stock in the armory of the patient and is used for destroying more virulent protein, if the bacteria of that particular kind of disease really try to attack the body cells of a vaccinated individual later—the body cells having been forewarned are forearmed. Bacteria which cause disease had to become highly organized in the struggle for existence. They are highly organized chemically although simple morphologically, and in the course of evolution have become quite the peers of the body cells with which they enter into conflict.

The cell is not the physiologic unit of life, but only the morphologic unit; the physiologic unit is a protein molecule within the cell. Physiologic unit of microbe is pretty evenly matched against physiologic unit of body cell. Morphologic units do not count so very much in the warfare question. Nature plays with the latter units and fights with the former. Every living cell has to feed and it forms ferments which split up proteins of other cells upon which it feeds. Only those bacteria which have the power to split up the proteins of our body cells are the ones which are capable of causing disease. The ferments with which cells of bacteria or cells of our bodies split up materials for their food are the "extra-cellular" ferments. Following the laws of osmosis and other ordinary diffusion laws these ferments extend from the cell into its "victim material" and cleave out of that victim material whatever the cell wishes to eat. In addition to extracellular ferments which are the hunters, living cells have intracellular ferments which do not travel away from home. These latter are the builders. They take the materials brought to them by the extracellular ferments and build it into cell tissue. When the bacteria of a certain kind of disease enter the body of an individual, their extracellular ferment splits up body cells of the individual, and the protein food thus obtained is used by the intracellular ferments of the bacteria for their own purposes. Meanwhile the body cells of the individual are waking up. They proceed to manufacture extra and intracellular ferments of their own to be used defensively. The whole theory of vaccination centres about the physician's diplomacy in arousing these body cells of the individual by crying "Wolf!" just often enough so that the individual is all ready to meet the wolf should it appear. In an increasing number of kinds of disease we may now arouse the whole village of body cells and destroy an invader which has actually appeared unawares. We sound

the tocsin and the toxin is annihilated. We must not forget that the study of the protein poison was first worked out by an American investigator, Dr. Victor C. Vaughan. In addition to the influence of protein poisons from bacteria, disease may be caused by other proteins; for instance, hay fever from the pollen of *artemisia*, or ivy poison from glandular secretions of *rhus*. An hypothesis for which I am somewhat responsible includes the idea that such widely different ailments as some forms of skin disease, of cholera infantum, of intussusception, of some insanities and of certain peritoneal adhesions, are caused by proteins from undigested or unmetabolized products of food, or from morbid protein products from a patient's own body cells. We may some day vaccinate against many of these diseases. When food in the enteron has approached the peptone stage, its proteins are then poison if they become para-enteral and have to undergo digestion by parenteral fluids and tissues before they have been changed over into useful amino-acids. In the course of physical decline, when the ductless glands of people are losing their efficiency as protectors, it is my idea that parenteral protein poisons as well as enteral protein poisons are to exercise more and more influence in lessening the numbers of the physically weak, while population on the whole increases.

Some of the hospitals at the present time have a collection of experts in every department of medicine, so arranged that the whole machine can instantly be brought to bear for the benefit of any single case. This is an ideal condition which needs very large endowment by private funds or by the state. When more of our hospitals are organized upon that basis almost every patient may have a report from the internal secretions expert, before his case is taken in charge by the surgeon or internist.

Many young doctors consider it desirable after finishing their studies to take up work at a large dispensary where they see a great many cases, but I have often observed an injurious effect from their getting into the habit of making superficial diagnoses. They run over a mass of clinical material for the purpose of finding something interesting, before they have learned what really is interesting. Almost every case that came in could very profitably have been given at least an hour of study, and yet I have heard young doctors boast of disposing of twenty cases in that length of time. In "Theætetus" the youth replies to Socrates: "According to my present notion, he who knows perceives what he knows, and therefore I should say that knowledge is perception." When hastily disposing of a large number of clinical cases, the doctor perceives only what he already knows, without taking detailed steps for obtaining all of the knowledge which is extant in relation to a given case.

The world needs every mind that can be developed, no matter to which sex it belongs.

Women in the practice of medicine have not as a rule been quite as successful as they deserve to be, upon a basis of their accomplishments. There are a few exceptions, but it is rarely indeed that feminine nature, even that which remains in the presence of viraginity, can bear with equanimity the shocks which are incidental to taking an important position in the world's affairs. If a woman when devoting herself with all the conscientiousness of her nature to some scientific problem is said to be untruthful, or if her character is brought into question, feminine nature obliges her to stop and resent the imputation. Stopping to resent an imputation means diversion of energy, and should not be allowed to occur, because it leads to a dissipation of those forces which belong to professional work proper. The weaker ones among men are, to be sure,

diverted from their work when stopping to resent imputations. It is almost a virtue for a woman to be sensitive to personal attack, while for a man it is a bad vice. The reason why it is immoral for any man to be sensitive if he is engaged in serious work, is because response to irritation lessens his capacity for the work in which he is engaged. Another reason why women have not been as successful as they deserve to be in the practice of medicine is because other women do not seem to have a sufficient degree of confidence in them. It is said that the measure of a woman is her measure of other women. The majority of lay women do not seem to measure the capacity of women physicians accurately. The latter represent for the most part women of a high type of mind, who stand at the head of their classes in the humanities as well as in scientific work, and who show weakness only when they go out of their way to resent attack. One who does this is instinctively subjected to the familiar dictum *"Qui s'excuse, s'accuse."* The stronger men know it is better never to explain nor to complain, but women find it particularly difficult to avoid this rock. Among men it is generally conceded that the ones who have to be handled with gloves should really be handled with an axe in order to save time, but it is quite the exception to find a woman who does not need to be handled with gloves. According to the census reports the proportion of women who enter medical colleges has been diminishing steadily since 1905. There may be an increased proportion again under higher educational requirements because women stand so well in average scholarship. It probably means that difficulties are out of proportion to advantages gained in the practice of medicine by women. There are certain fields of practice in which it is very desirable to have women practitioners, and a fairly large number of women who are peculiarly well equipped for this work will continue to engage in

practice. In all probability the prejudice against women in medicine is primal in origin and means nothing more than the prejudice which is expressed against women or men in occupations which are felt to belong naturally to the other sex.

Scholarship has been an obstacle to success among men in the medical profession when it has introduced doubt and speculative philosophy. In almost any town we may observe the object lesson of a doctor with mild degree of education succeeding better than one of highest academic attainments. We do not know as yet how this will work out among women physicians. The experiment is being made. We are not to assume that a dull fellow is to be more successful than the scholar as a logical sequence. There is another factor in the problem—our present system of education. Under our accepted educational methods a scholar may go far wrong merely through fidelity in adherence to what he is taught. The exemplar man on the other hand, using his common sense (robust uncultivated instinct) may become the better man in applied principles of practice. In some other cultural period the scholar may necessarily be the better doctor.

Two degrees from the world's academy should go to women who have tried to do well. These degrees are A + L and A — L. A + L is admiration plus love, A — L admiration minus love. Not all women have the ability to win either one of the two degrees, but the rest may be classified very satisfactorily in this way.

There is not less work for doctors to do at the present time, although preventive medicine has lessened the number of old fashioned cases. There is more work in fact, though we do not fully realize it as yet. Preventive medicine results in the saving of such a large proportion of defectives who are marked by nature for elimination that we are immediately confronted with a great new problem—that of managing the

double roses who are enormously valuable because they include the abnormally talented. Doctors have not as yet been able to adapt themselves quickly to the rapidly changing conditions. Many physicians during the past decade have become demoralized by the dropping away of cases which formerly gave them good incomes for the support of their families. Instead of taking up the scientific study of toxic processes, which would have occupied them fully, but which required a high order of new education, they have too often turned toward lines of least resistance.

There is no diminution or change in the amount of work for doctors to do, there is change only in the character of the work to be done. Let us say that in "visit-days," old-fashioned doctors had a great deal of occupation with typhoid fever, diphtheria, measles and other infections. To-morrow they are to arrive at "case days" instead of "visit-days" in practice. Members of the medical profession will begin to realize the necessity for giving as much attention to lumbago as they formerly gave to typhoid fever, and this will be profitable to the patient as well as to the doctor. He must give more attention to a case of neuritis than he ever gave to a case of diphtheria, with more profit to the patient and to himself. He must give more attention to eczema than he ever gave to measles, more attention to asthma than he ever gave to scarlet fever, and all with great profit to the patient and to himself.

The day of the general practitioner is to return. One reason why so many men have given up general practice for specialties is because the diminishing returns from general practice have not been sufficient to allow a good style of living. This is a more or less commercial view. The change back to the general practitioner will take place when a certain fundamental principle has been realized, the principle that a physician is

to consider that his responsibility and charges belong to the case as a whole, rather than upon a basis of the number of visits. The responsibility of taking charge of a case of arteriosclerosis, for instance, managed properly by the year, may be really worth let us say, two thousand dollars per year, and if the physician has a sufficient number of cases paying only a fraction of that sum, he will not need for income. The responsibility of caring for a case of dyspepsia, a case of pneumonia, of typhoid fever, should not longer be put upon the basis of visits but upon the basis of responsibility and degree of work involved in any given case. This to my mind is to bring about the change, and to bring back the physician who is the friend of the patient, the adviser of youth, the steersman with a hand on the wheel who guides a case through the best channels. This physician will employ experts, but he will remain a peer of all experts, and his emoluments will equal theirs.

Many members of the profession may do as the Mayos have done. They must first have true merit for a basis. There are many towns with two men of true merit. Next in order organization of consultants is essential. Next,—organization of facilities. The whole organization can go as far as the basic character and skill upon which all else is built will allow. There are plenty of men with skill and character, but few with the added combination of executive ability.

A young man just starting out in professional work has usually been trained both in his academic and scientific courses by men who teach subjects and principles, without relation to their concrete mixture with human nature. In practice he soon finds that he must work from a recognition of the purely human element.

One of my early mistakes was the result of not realizing the difference between a patient and a case. At the time when

a famous public man was under treatment, and I believed that a certain method of procedure would be of value, a letter was written to one of the surgeons in the case stating my views and offering my services. At that early day I did not realize that a good deal of diplomacy is often exercised for "getting into a case," and that the matter came under social laws in preference to rules of scientific procedure. My only thought was of the case and not for a moment about the patient and his social relation. At the present time the writing of that letter seems to me quite as ridiculous as it did to the surgeons who were in charge.

As a matter of fact, the responsibility for the writing of that letter can be shifted. No decent man shifts responsibility when it will impose a burden upon anyone else, but at this late date no one at all will be harmed by the statement that the idea of offering my services came from a much older physician, who had been impressed by my removal of the larynx for one of his patients. If memory serves correctly no one else had done the operation in this country at that time, and my older friend was sure that an operation which had saved the life of his humble patient would save the life of the famous public man. Details of the matter have all been forgotten long ago, and it is only when remembering past experiences which will serve as a warning to younger men that I recall the genuine and simple-hearted interest of an older physician and of a young surgeon "in a case rather than in a patient."

A doctor just out of the hospital interne part of his training imagines that he will have no responsibility beyond the treating of cases, and in the latest and most scientific way. He gradually learns, however, that patients are no longer under his thumb, controlled through the very helpful weight of some one's else responsibility. He finds that it is the

patient rather than the case which requires treatment. Not only that, but he must sometimes treat the psychology of the entire family of a patient. As he obtains a better and better clientele of patients, it will include a more and more highly sensitized group of people, and the complications will become so complex that he may fail as a physician, although possessing the most scientific sort of mind and the best of methods. He may make a complete failure unless he has a genuine human sympathy which allows him to understand a great range of psychology in other people. I have sometimes felt that the study of psychology ought to be a primary requisite for the medical student, but yet for him it might play only the perfunctory part which arithmetic serves in the study of mathematics, by students who wish to pass up and then forget all about it. If one becomes interested in geometry before he is taught arithmetic he perceives the need for arithmetic and learns rapidly what is seen to be needed. If one were to be taught psychology as a primary study, preparatory to the practice of medicine, it might not be of great advantage to him. When one gets to realize the real need for this study in controlling certain patients in his practice, he then begins to understand what advantages are given by a knowledge of psychology.

In the eighties psychology had been made to assume a semblance of form but had been shaken down to little more than a massed jumble of speculative ideas. Since that time it has taken a place in line among the ambitious young sciences, but still bearing a heavy crop of metaphysics, which is the mistletoe upon science. A little *Phoradendron* here and there is really decorative and adds an attractive bit of form and color, but when too much of it depends upon one host, it exerts destructive influence. There is so much of psychology which in its very nature cannot be comprehended, that a tendency

always remains for the psychologist to fill in vacant spaces with speculative philosophy. This, like the tail of a comet, becomes more and more tenuous as it recedes from the head, and then comet-like proceeds to travel more or less tail first through part of its elliptic. The atmosphere of this philosophic tail has a suffocating effect upon other sciences. The psychologist obscures vacant spaces in his science with a cloud of abstruseness. During the past thirty years psychology has passed from the classification of *Psychologia Sp. (?)* to that of *Psychologia parascientia Var. Protagoreia,*—and now, to *Psychologia scientia.* Characteristic varieties of the latter species are at present being industriously worked up. Now-a-days we may take the scientific kind of psychology quite seriously.

We cannot as yet add psychology to the curriculum of the medical school, excepting in its most concrete and objective phases. (Note the warning object lesson furnished by psych-analysts). Psychology remains partly in the dark ages, along with psychiatry and neurology, but some varieties are being classified upon a basis of science as a result of the active mutual recrimination between psychologist and physician. The psychologist, having given himself metaphysical position, looks down with a sort of lofty disdain upon the comatosity of the physician in this field of practice. The physician calls up to the psychologist that most of his ideas are out of date so far as their practical value may be concerned, and he might better descend for awhile. Healthy activity evinced in the form of mutual recrimination follows the law of reactions in its working, and develops the mind very much as the screaming of a child leads to first-rate lung development as an end-result. Two negatives cannot make a positive in general; there is an exception, however, in special application when warfare eliminates the unfit from both sides, leaving a

positive family doctor—We do not wish the warfare between family doctor and psychologist to cease as yet.

We hear a good deal about certain people having personal magnetism. Personal magnetism is nothing more than the reflection of a genuine interest in mankind in general. Almost everybody exerts attraction for at least one individual specifically, but one must have genuine interest in his fellow men generically in order to carry persistently what is named personal magnetism.

Hypnotism and suggestion are more or less synonymous, and it is impossible to make a definition showing a point at which ordinary external impression and hypnotism have lines of demarcation between them. When I entered the field of medicine, hypnotism was being given a great deal of attention on the part of students of the subject. Many books were being written, describing its value as a resource to be deliberately applied for service to our patients. At the present time it has been relegated to a position among the curiosities of practice, although here and there we find a reputable physician who is convinced of the value of hypnotism as part of our armamentarium. Most of us, perhaps, have come to feel that hypnotism is as dangerous as any other powerful resource, and should be employed with that degree of caution which we observe when giving poisonous drugs. Such at least is my own conviction. I studied some of the methods of hypnotism, as did most of the younger men at that time, and found that it was not difficult to hypnotize a fair proportion of patients according to any one of three or four established methods. The method which I chose was that of tiring the eyes by directing the subject to give close attention to a small brilliant diamond pin moved slowly and rhythmically back and forth. When the eyes became sufficiently tired and brain tire followed in consequence, the patients were then sufficiently receptive to

adopt the suggestion of drowsiness. Having accepted that, they were ready for varied further suggestions. It was sometimes possible to do minor surgical operations and such painful work as reduction of dislocated joints, while the patients were under hypnotic influence. These patients, having once accepted suggestion from me, seemed always ready to adopt any other suggestion later. Such uncanny relationship was one of which I did not approve, feeling that people are generally much safer if they fight with me, instead of agreeing with me upon any subject. From my own experience with the employment of hypnotism I am obliged to feel that the subjects of all hypnotists must act similarly, and therefore that it is extremely dangerous for an individual to surrender the will to any other individual, no matter for what purpose or how good the excuse. It seems to me that a will which has been weakened through the power of any other will is apt to remain weakened against the will of many others. As members of a responsible profession, and as responsible members of society, we are doing a wrong in thus lessening that resistance which is necessary on the part of every individual for playing a role in the stability of society.

Nurses at the hospitals say that patients are like their physicians, and they have sometimes told me they could observe without much difficulty which physician had charge of certain cases. One physician will have a set of patients who are in a state of unrest, showing disquietude continually, finding fault both with their physician and with their surroundings, apprehensive, and running stormy courses as patients. Another group of patients under another physician, other circumstances being similar, will all be quiet peaceable, and devoted to kindly thoughts of their nurses and in harmony with their surroundings. This is all the result of suggestion. Patients when restored to good health resist external impres-

sions habitually and live in their own ways according to their methods of adaptation to environment, but when they are ill they are particularly receptive to suggestion that is carried in the manner, words, and bearing of the one upon whom they are chiefly dependent for the time being. This explains very well why the various religious and other healing movements carry their crowd of followers with so much ease, when people of healthier minds clearly perceive the fallacies which may belong to such movements.

In our professional work many temptations to take advantage of human nature must be rigorously guarded against. People may be easily alarmed by anyone whom they believe to be responsible. Some years ago when called out of town to see a case in consultation I went about with the physician on subsequent calls before train time. He suggested the danger of a "touch of diphtheria" in four different cases of throat trouble in which there was nothing more than a prevalent tonsilitis. I noted the alarm which his suggestion called forth and which insured for him continued and frequent calls upon these patients. Nothing could have been more repugnant and repulsive to me, and I have never ceased to think of this doctor as a monster in the profession. This was many years ago and a wide experience with members of the profession leads me to believe that very few indeed are willing to turn human nature to their own account in this way. The tendency is rather in the other direction, and good doctors are prone to err on the side of making light of really serious troubles. They have a tendency to make too little of the importance of cases, and to give passing superficial attention only to matters which really require close and continued observation. There is a good-natured desire to "let the patient off easy."

One helpful qualification for a surgeon is a kind of self-deluding hopefulness, and a persistence even to the degree of

obstinacy. There is a certain comparison in definitions which reads like this: "Firmness is will power, and obstinacy is won't power." The surgeon who is stupidly obstinate to the point that he won't let the patient die,—regardless of any deeper insight,—may be really carrying a suggestion which is immensely helpful to the patient. The eagerness with which a patient watches the doctor's face means that the doctor's doubts instantly become the patient's doubts, particularly if the patient is a woman. If the surgeon has in mind a question about her recovery, she recognizes it "quicker than lightning." If he puts aside the doubt by an effort of the will until he is out of her presence, remaining in a fool's paradise while at her bedside, it will give her courage to live. I have never forgotten one case of a great fibroid tumor in which the patient was nearly dead from hemorrhage in advance of the operation. On the following morning she was barely living. Speaking in a low whisper she said, as I bent over close to catch her words, "Doctor, I am dying." She really was dying, but I replied: "Oh, you must not think that, for it will spoil my statistics." This was not heartless levity. It was giving her something to grasp quickly, at a moment when a tear drop in sympathy might have been as fatal as a bullet in its effect. Some months after her recovery, she said one day, "Do you know what saved my life? On the morning when I was barely holding on and everything was nearly a blank, you said if I died it would spoil your statistics, and I determined to make one last effort to live for the sake of your statistics. I was too far gone to care anything about myself,—in fact really wanted to die and end it all." This matter of thoughtfulness for others is characteristic of woman. It does not always have the effect of saving her life however. We are apt to look upon it rather as one of her dangers.

It is very unsafe to make the diagnosis of "a moribund con-

dition." Not unfrequently a case is abandoned in the belief that the patient is moribund, and yet we see now and then a startling recovery from the application of last-resort resources. There is no doubt that death after an operation brings discredit to surgery because people in general do not distinguish between cases. On these grounds some surgeons have held that it is not best to operate when a patient is almost certain to die as a result of his condition, with or without operation. There is good ground for their argument but personally I have never been able to bring myself to adopt this point of view. It seems to me that we must give the last chance to everyone, even if the whole profession of surgery goes to the dogs in consequence. There is always a natural tendency to make "surgical judgment" favor one's own reputation a bit.

In the actual practice of surgery one needs to employ many other things beside science. On one occasion there was a call to a distance for an operation upon a man suffering with stone in the bladder. He was an aged man of wealth, with a young wife. On arriving in the town I found the man in a seriously septic condition, and knew that an operation would give him the only possible chance for life. His physicians were present and had everything ready for operation, but the young wife said quite firmly to me, "We have decided not to have an operation done. He cannot stand it." It was evident that by "we" the wife was speaking editorially. I awaited an opportunity to speak with her aside and then said quietly: "Now, madam, if your husband dies without operation, and you are known to have opposed it, you may imagine what the neighbors will say." "Mercy!" she replied. "What do you mean?" "Madam," said I, "if you do not know what was meant, you would not have exclaimed 'Mercy!'" "Dear me!" said she, "I guess you had better go ahead with the operation." The man's life was saved.

On another occasion when called to a case of appendicitis with abscess, it was apparent that the doctors and members of the family were all being domineered by an elderly maiden aunt, and I was informed "aside" that she had set herself against the idea of an operation upon her nephew. In fact, while we were examining the patient she took occasion to absent herself, and stood in the adjoining room all alone looking out of the window in an attitude of lack of interest. I knew what would be forthcoming, having been warned. Stepping out to her, I said, "We have decided upon immediate operation, and we are a little short of help. Judging from your face you are a woman of great determination and plenty of nerve, and you can stand right up and help us without flinching." A complete change of bearing ensued. She looked highly pleased, came straight out, and practically directed the whole arrangement of the room in preparation for the operation. She really was a masterful woman, but had not previously been convinced about the need for operation in the case.

There is indeed much more to surgery than surgical work. For instance, one case comes to mind in which an extremely nervous man of the race horse type, occupying a high executive position and accustomed to dictate, required an operation for ulcer of the stomach. He was suffering from the depression and mental vagaries commonly belonging to that condition. His wife, who was closely devoted, was almost erratic in her belief in her duties toward him. He threatened to commit suicide rather than submit to an operation, and would not go to the hospital at first, but through the wife's insistence finally went. At the time of the operation, with assistants and everything ready, and all of the machinery of preparation in order for conducting an important operation, the patient refused to take the anæsthetic until after much

argument. A moment later he jumped off from the table and decided that he would not have the operation done on that day, but at some other time. We all knew too well what that meant, and it was a question if we had the right to use force. A consultation was at once held in an adjoining room between the various doctors and the good wife who was on the point of collapse. We decided that it would be morally wrong not to use force, because the patient was likely to do himself some injury on finding that his will had given way at the last moment. The orderlies and assistants were consequently given instructions to take the violently protesting patient by force, on the ground that he had inhaled a certain amount of anæsthetic and was not quite rational. The operation was performed without unusual difficulty and on the following morning the patient said nothing whatsoever about our having used force. After the operation the good wife felt that she must remain by his side constantly day and night. This always affects the work of trained nurses and they object to it seriously, because their every movement and attitude is apt to be criticized by one who is over-solicitous. The two excellent nurses at once objected to fanciful requirements that were insisted upon by the good wife, along with demands on the part of the patient which were more or less unreasonable, but which were complied with,—in the midst of a spirit of general opposition between all parties. The hospital housestaff felt that the surgeon should stand by the nurses, and request the devoted wife to remain away. On the other hand, she was the only one who had exercised power sufficient for getting her husband to the hospital, and it was she who had permitted us to use force at the time of the operation. Beside that the patient was continually calling for her. There soon came the anticipated demand for a change of nurses,—always a serious matter, because it includes the idea of incompetency on

the part of the ones who are in charge. We surmised that new ones would not be any more satisfactory under the conditions, but a change of one nurse was made, and the other remained unwillingly. After three or four days of unceasing irruption on the part of everybody connected with the case the patient made a sudden impatient movement at night, sitting up in bed to get a drink. He pulled apart the abdominal sutures, and it resulted in his death a few hours later. If instead of having disturbances so complicated and continuous, the patient had simply entered the hospital quietly in an ordinary way, secured nurses in an ordinary way, and undergone operation in an ordinary way, the surgeon would have had very little anxiety, and the patient would undoubtedly have made an ordinary recovery. This case is quoted merely as an illustration of what some of you will have to meet when leaving the simple surroundings of plain scientific work at the hospital, and entering the field of practice in which people, rather than cases, have to be managed. How happy a great many people would be if we could only cut their heads off! That is the only part that makes trouble for themselves and for us.

We have to be diplomatic in our conduct with patients. Not long ago an operation had been planned for a middle-aged young woman. She came from the West to New York and was to pay a good fee. Everything was all arranged, and just as she was leaving my office for the hospital I remarked, "You will gain fifteen or twenty pounds in weight after this operation." She instantly asked: "Do you mean that?" I replied, "Yes." "Then," said she, "I am not going to have it," and back home she went. It cost me twenty-five hundred dollars to make that unnecessary statement to her.

Once on a train a stranger opened conversation on the subject of a goitre which needed removal, and asked me what New York surgeon he should consult. I told him to

go and talk with Dr. Coley who happened to be on the same train,—as he was just the man to do it. The man replied that he had already talked with Dr. Coley, and it was he who had sent him over to my seat. Neither one of us ever saw the man afterward, and the chances are that he thought neither one of us really wanted to care for him, when in fact it was such a promising case for a satisfactory result that we each had to use some nicety of taste in order to refer him to the other.

Whenever a new operation is devised there will always be some surgeons who find too many cases for its application and who do too much of that sort of work, while others do too little of it. Between these extremes there are surgeons who use good judgment, careful methods in diagnosis, and the maintenance of a good sense of propriety in selection of cases.

As one becomes older in the profession there is always a certain pause, a hesitation, before doing any surgical work which is not distinctly necessary. There are many distressing results from meddlesome surgery. A young man commonly requires no further incentive to action than the mere finding of surgical conditions. An unimportant lipoma, a mulberry ovary, an old joint dislocation with good enough function remaining—"these are clearly surgical conditions," he says in surprise, when a policy of conservatism is suggested in council. After a while he begins to consider surgical cases in a comparative way. What is the comparative danger between neglect and action? What is the comparative benefit to be derived by the patient? When one has had cases enough—and that is the main point—he will find that every now and then the microbe has tripped him up in the simplest of cases. The alert microbe is ever ready to slip in, and a very little mistake in judgment or error in technic in a quite simple case may allow the microbe to introduce a large feature of sorrow and regret into the case. Our arguments and "charge by the

court" may be all right, but we are always at the mercy of a socialistic microbe jury. At the time in life when we are most ready to operate, we are least well equipped for exercising judgment about the actual necessity for operation.

Aside from the microbe, other little things may make trouble unexpectedly. Some years ago I had to do a trifling operation for a beautiful young woman who was about to be married. There was a small linear ulcer of the common sort in the grasp of the vesical sphincter, which was to be cured in the customary way by dilatation and the application of a drop of nitrate of silver solution. When introducing the dilator there was a sudden spasmodic movement to which I paid little attention, but the dilator when removed was not followed by the gush of boric acid solution as anticipated, and I at once realized that vesical rupture had occurred as a result of spasm. The customary steps were taken instantly, but this young woman died three days later from acute general peritonitis.

One of my acquaintances among the "occasional operators" set out to remove a small branchial cyst from the neck of an only daughter who was very popular in the younger social set in New York. He depended upon local anesthesia, and was not quite familiar with the fact that the wall of these cysts is often associated intimately with the jugular vein. When pulling up the little cyst, he pulled up the wall of the jugular vein and excised a segment of the latter with his scissors unwittingly. The steps for an immediate operation which were now called for could not be followed in the area which was under the influence of local anesthesia. The operator lost his head and the patient died in the course of a few minutes from hemorrhage. Neither one of these accidents would have happened to more experienced surgeons in the

first place, and in the second place, better-trained surgeons would have saved the life of one or perhaps of both patients, even if the accidents had happened.

The majority of medical patients as well as surgical patients get well anyway, no matter what is done to or for them, and physicians through all history have taken credit to themselves for results which nature was bound to accomplish, very often in spite of the treatment which was employed and which was really antagonistic to the patient's interest.

When making reports upon cases it is extremely important to report upon both sides of a question. The profession is very suspicious if one reports good results only, forgetting about the others. It is much more important to report deaths and accidents than to report a series of good results if one is not recording a consecutive series of cases. Consecutive cases are the only ones which are really valuable for statistical purposes.

It is important also to publish a report of one's mistakes in diagnosis.

Some of my mistakes have allowed other surgeons to think of right things in response, and of which they might not have thought otherwise.

Cabot of Boston made a report upon post mortem examination in three thousand cases in which antemortem diagnoses had been made by physicians of a representative class. Correct diagnosis varied from 16 to 95 per cent., according to the sort of disease. Diabetes mellitus was diagnosticated correctly in 95 per cent. of the cases, although this in itself is only a symptom. The symptom of diabetes mellitus simply indicates that it is high time for us to make a real diagnosis in the case. Typhoid was diagnosticated correctly in 92 per cent. of the cases reported by Cabot, aortic regurgitation in 84 per cent., cancer of the colon 74 per cent., thoracic aneurysm 50 per

cent., tuberculosis of the kidney 33½ per cent., acute pericarditis 20 per cent., acute nephritis 16 per cent. If this is the proportion of correct diagnoses of the sort of physicians who furnished Dr. Cabot's statistics,—a well educated and conscientious element in the profession—the number of incorrect diagnoses made daily by physicians in general must be pretty large. Some of the irregular practitioners and faddists would have almost no correct diagnoses at all to their credit. Their patients who recover do so through the *vis medicatrix naturae,* plus treatment of symptoms.

One is not to be blamed for making mistakes in diagnosis, unless he is careless. That is inexcusable. I do not know of a case in which any one of my own mistakes in diagnosis has been actually injurious to the patient, but some of them might have been. On one occasion I was called to a distance in a case in which some of the physicians believed gall stones to be present. The patient appeared to be cachectic, with a history of the loss of about fifty pounds in weight. She was very feeble and had an irregular immovable mass in the gall-bladder region which I took to be cancer. The opinion was given that the case was one of cancer, not operable, and the best plan would be to allow the patient to have all of the morphine that she required in order to make her remaining weeks of life as full of comfort as possible. The case soon passed out of mind, and it was perhaps three months afterward when I happened to meet one of the physicians and asked him how long the patient had lived. He replied, "Oh, I meant to write you. When we began to give her morphine on your suggestion, it apparently caused relaxation of a spasmodic condition of the cystic duct. Something at least happened. She passed a large gall stone, and has got back most of her weight and is in better health than for many years previously."

One amusing mistake occurred when a doctor called me to assist him at an appendix operation, asking if I would stand by to make suggestions while he did the work. After examining the patient, my diagnosis was that, in view of the patient's advanced age, the long history of the illness, the comparatively mild beginning, the cachexia, and the presence of a movable mass in the cecal region, he was probably dealing with a cancer of the cecum rather than appendicitis. An excision of the cecum was advised. The doctor said in that case he preferred to have me do the operation, as he did not feel prepared to do anything quite so extensive. Incidentally I would remark that right here is where a great many "occasional operators" make dreadful mistakes. Imagining themselves to be qualified for doing an operation for appendicitis and yet not prepared to do a bowel excision, they must sometimes find themselves with an appendix operation requiring a great deal more technical skill and nice judgment than would be demanded for an ordinary bowel excision. My reply was that if we were to do an operation of this sort, the patient should be at the hospital instead of at her home. She was moved down in the ambulance and the operation was done in the presence of my class at the college. I carefully described the differential diagnosis between appendicitis and cancer of the cecum, and then upon operating found that it was really a case of appendicitis with perforation, and a concretion in the walled-in abscess cavity.

Unsuccessful cases often remain unreported by men who are honest by nature and training, but who are discomfited by failure and do not like to think of the subject even when all alone. They may mean to report the cases, but time goes on and it is not done. If it is one's wish to be really helpful to the profession, he must make a point of reporting all of his important mistakes at society meetings at least. Nothing is

more injurious than having a reputation for reporting successes only.

In one of my cases of mistaken diagnosis of appendicitis, a patient from a distance gave a very clear history of an acute attack followed by such a degree of abdominal tenderness and resistance that we could not palpate well. I was under the impression that we were dealing with a chronic abscess in the vicinity, subsequent upon an acute attack. Upon opening the abdomen the peritoneum and appendix were found to be perfectly normal. It was a case of hysteria major in which the patient had chosen to deceive us, and had learned the symptoms of the disease for purposes of recital to us. I am always on guard against these traps of hysteria major, but made a mistake that time, and finding the tissues normal proceeded to replace the appendix within the abdomen. The patient's physician who stood by my side and who had come on with her from a distance asked if I were not going to remove the appendix. I replied that it would be against my principles to do so. He said that he could not take her back to the town from which they had come, with a statement of the facts in the case. I told him the better way was to state the exact truth, because that would be explanation enough, but he replied, "No, I cannot do that. I will say that you took out the appendix, but will not say that you put it back again." In any event there was nothing more to be said, and the patient and her physician returned home at the end of a couple of weeks. She was entirely cured of her symptoms for the time being. A year or so later she was taken to a Buffalo surgeon for some supposed ovarian trouble demanding immediate operation. He was deceived as I had been, and while having the abdomen open thought it would be interesting to turn to the cecum and see the result of my former operation, of which she had told him. Finding the appendix normal

and not removed, he thought it a very good joke, which was quietly passed about for some time until I incidentally heard of it a year or so later.

Once when opening the abdomen of a young girl and finding that we apparently had a morbid growth to deal with, and what appeared to be malignant papilloma of the peritoneum, I at once closed the abdomen, and said to the friends that the girl could not live more than a couple of months, as her case was hopeless. Other consultants had tried to help her and my opinion was held to be final. A hopeless prognosis having been given, the family yielded to the importunities of friends and allowed the patient to be taken in charge by a Christian Scientist. She rapidly became well and gained some forty pounds in weight. On hearing of this I examined for the first time a specimen which had been removed at the time of operation, and found that the case had really been one of tuberculosis of the peritoneum all along. Patients not infrequently recover from this condition as a result of simple opening of the peritoneal cavity. The hyperleucocytosis which is excited by opening the peritoneal cavity leads to destruction of tubercle bacilli. I had been so sure of the diagnosis of papilloma that the specimen had not even been sent to the laboratory for examination at first. The Christian Scientists had a fine case for quotation as a result of my mistaking a rare form of tuberculosis for papilloma.

In my early appendicitis work one of the patients who was lost had a small chronic abscess remaining after her appendix had sloughed. When hunting conscientiously for the appendix among extensive adhesions, so much injury was caused that the patient died as a result. At the present day the situation would be recognized at a glance, and such a patient would ordinarily be out of bed and well along the road toward

recovery in the course of ten days. The appendicitis operation is sometimes far from easy in cases in which it may at least be made safe. Knowing when and where to stop in the course of an operation is one of those difficult things which tax the judgment of the most experienced surgeons. Hundreds of patients are lost every year because their surgeons did not have the experience and training requisite for letting them know just when to stop in the course of a given operation.

Early in practice there was once occasion to remove a scarred fibrous tonsil for a youth. It was drawn too far forward with the tenaculum, and while it was being severed with a scalpel, the carotid artery was opened. I was all alone without medical assistants, and had even given the anesthetic myself, asking a member of the family to lend an unskilled hand later. Relating the occurrence to a friend shortly afterward, the statement was made that the carotid stream went to a wall of the room ten feet away. He reminded me that the carotid could only throw a stream half that distance, and my estimate represented a state of mind rather than a measured distance. The accident caused the patient no harm of consequence. In fact he was never told about it.

While thinking of accidents a case comes to mind in which a large ovarian tumor was to be removed at a farmhouse. We had bowls of antiseptics and various appliances on the same table upon which the operation was being done,—one of the common kitchen tables with leaves. The room suddenly grew very dark because of an approaching thunderstorm, and two large lamps were moved to the table. Just as we were in the midst of the operation one of my assistants leaned too heavily upon the table, breaking it in the middle. Patient, bowls of antiseptics, lamps, blankets, and all of the rest of us tumbled into one heap. One of the lamps blazed explosively over the patient's open abdomen and had to be smothered with a

blanket. We managed to straighten things out and completed the operation upon the floor of the room. The patient made a good recovery.

On one occasion in a village an enormous tumor had to be removed with the help of three unskilled assistants. Two of the doctors boasted of having served in the war of the Rebellion. The work was partly done, when in the midst of details requiring greatest assistance, one of the war doctors fainted, and had to be stretched out upon the floor. The anesthetist then began to feel faint, and I was obliged to complete the work alone without operative assistance, because the only remaining assistant had to give the anesthetic.

One might fill a very large book with tales of odd experiences and only a few which happen to come to mind are quoted here. Many years ago a patient with dysmenorrhea wished to have a flexion straightened, but her husband objected to having any operative work done. One day she sent word that her husband was away for the day, and she would like to have us do the proposed work. Dr. J. S. K. and I repaired to the house. We decided not to use ether because it would leave a tell-tale odor. Chloroform was chosen instead and hurriedly given. We were just on the point of beginning the work when the patient suddenly died. Dr. K. threw her knees over his shoulders while I made artificial respiration and resorted to various tactics for arousing heart action. During at least ten minutes there was not the slightest response. Then a slight gasp made the very sweetest sound we had ever heard in our lives. Ten minutes later the patient was breathing and we completed the operative work. To this day the patient does not know of our experience and her husband does not know that the operation was ever done, but Dr. K. and I remember. It was a very rash procedure on the part of two young doctors, and we would not think of

taking any such chances to-day, no matter what justification might be offered by the circumstances of a case.

The first medical case in which I ever became interested occurred during student days at the University, long before taking up a medical course. A poor boy who lived near where we went bass fishing was supposed by the doctors in charge to have hydrophobia. The newspapers described it that way. The boy lay in a nearly unconscious condition for several days, and when anything was moved near his face, would growl and snap at it like a dog and froth at the mouth. On account of my interest in the boy I went to the library and read up on the subject of hydrophobia, and decided that the patient did not have this disease, but something else. It seemed to work out as a case of some nervous derangement. The boy simulated the fancied action of a mad dog. Incidentally when looking up the subject of nervous derangement, I learned that suggestion was a powerful influence in treatment and asked the family to let me take charge of the case for a day. It was generally agreed that the boy had only a short time to live, and my proposition was accepted. In less than two hours the boy was sitting up, talking naturally, and asking for something to eat. His "hydrophobia" was cured, and he suffered only from the effects of the drugging which he had received. Since that time many newspaper accounts of similar cases have been reported, and it seems probable that death in these cases was due to drugs that were employed,—the disease being a peculiar form of hystero-epilepsy. This does not indicate any lack of belief on my part in the terrible diseases of rabies and of hydrophobia, for we know them only too well, but this particular form of nervous derangement which simulates hydrophobia is often mistaken for that disease.

My first "good" patient was a man who was suffering from malarial fever. One of his friends called me in an emergency

because no other doctor was quickly available. The patient informed me that he could not use quinine or arsenic in any form, or in fact any of the resources with which I happened to be familiar. It was very confusing. After investing good money and years in preparation for medical work, and feeling that I was ready with principles to take charge of almost any sort of case, or at least to take charge until special information could be collected, here at the very outset of practice were conditions which were completely out of order. Up to my last day on earth I can never forget the sickening feeling of discouragement at having to tell the patient (a distinguished architect, Mr. T.) frankly that I did not know what to do. His friend sent for a Homoeopathic practitioner and it was learned subsequently that the patient was getting on very comfortably and satisfactorily. After that nothing but dispensary patients came to the office for some weeks, but all at once notice was received that a second "good" patient was to arrive in New York on the following day. An old college friend in the West, who had confidence in me in some general way, had recommended this very influential business man to come East for treatment for his dyspepsia. It seemed really grand next day to be actually going into a fine hotel to see a patient who wore good clothes and a necktie. My feeling was one of great responsibility and importance. The patient stated that he had suffered for many years from dyspepsia, but without receiving any satisfactory treatment. It was high time to get at the case scientifically. It seemed the part of wisdom to begin safely, to study every detail, and to make as perfect a brief of the case as was ever made for any man. In order to be certain not to do anything wrongly I started in with his diet question, and told the patient that for dinner that night he would be allowed nothing but kumyss and toast. He remarked that he had never tried kumyss, but it

seemed probable that this delightful beverage food would please him, and at the same time keep his stomach contented until morning. There would be time for thinking over all of the points which had been obtained when getting notes of the case. There would be opportunity also for talking with some of my older colleagues. Next day the morning greeting was not very cordial. My heart fell with remembrance of the first "good" patient. I timidly asked how kumyss and toast had agreed. He growled that "it did not go." When he had stepped to the wash bowl to pull the cork out of the kumyss bottle, it came out too suddenly, and he jammed the bottle against the wash bowl forcibly. The hotel proprietor had informed him that it would cost twenty-five dollars to replace the broken bowl. About half of the explosive fluid flew over his wife's silk dress which it would cost about one hundred dollars to replace. The rest of the beverage which he drank made him so sick at the stomach that he had not fully recovered from the effects. He chose to go to another physician during the day.

After another series of dispensary patients the third "good" patient turned up. It was in an emergency. The people probably would have obtained somebody else if they could have found him quickly. A young woman of the rapid set had held up a bottle of champagne at the dinner table while a guest from the West endeavored to shoot out the cork. This he undoubtedly did well, and no one knows where the cork went in the dining room, but a piece of glass had flown into the young woman's eye, causing a dangerous injury. This sort of case could not be managed on general principles, and it did not seem right to take charge of such a special case myself, as it required very expert work. Consequently we decided to call a famous ophthalmologist Dr. A. in consultation at once. The consultant was sitting with his wife about the

library table at his home. He asked me the nature of the case. I asked if he would kindly step into an adjoining room, in order to avoid shocking his cultured wife with the statement of a case in which a woman's eye had been injured in an attempt to shoot the cork out of a champagne bottle. It was a proud moment when he complimented me upon my nicety of sensibility, and the wisdom of choosing an experienced consultant. He suggested that a cab be called, a luxury to which I was not accustomed. After we had seen the case and returned to his house, a very awkward position developed, because there was no money in my pocket with which to pay the cabman. It would not do to ask the consultant to loan me money, and the cabman could not be asked to give credit to one whom he did not know. The only way was to drive about until someone was found from whom the money could be borrowed. The hour being late at night, it was a long while before help could be obtained from a dear old friend, Dr. C. L. B., who was just returning late from a call and had not retired. The cab fee had risen meanwhile to such proportions that it cut a ragged hole in the fee which was collected from the patient, as it had seemed best to turn her over to the expert, leaving me without remuneration excepting for the first steps. These were the first three "good cases" of a young doctor.

I ran over in mind a list of acquaintances who were finely equipped, yet who had failed in practice. Was I to join this particular group? The signs were unquestionably pointing that way, and assured success appeared to belong only to patent medicine men and to fakers. One remark of Frank's gave me a strong handle. Said he, "If there is room in the profession for one more man I'm going to be that man."

Among my early cases was one of an old fracture of the spine. The patient was paralyzed below the point of fracture.

The idea occurred of trying to get together the ends of the divided spinal cord after removing a sufficient number of vertebrae. I talked the matter over with Dr. L. A. Sayre as an orthopædist and with Dr. E. C. Sequin as a neurologist. Both of them said that while such work had never been done, there was a possibility of making some observations of considerable value in the case. It was my wish to have for assistants some of the physicians of the town in which the young man lived, but they all refused to take part in any such proceeding. Further than that, the coroner was notified of the proposed operation and warning was given that if anything serious happened, I would be held responsible. The young man belonged to a church near at hand, and some of the members of the church had been instructed to use their influence and interfere with performance of the operation. Two volunteer assistants were taken from New York. At the moment of beginning the operation, somebody who was watching gave a signal to someone else at the church, who began to toll the bell. The operation was done with the church bell tolling and the sheriff waiting. The patient did not die as a result of the operation. We found on entering the spinal canal that the distal part of the cord had degenerated into a fibrous string to such a distance that the work could not be carried out as planned. Since that time many similar operations have been done for recent injuries and once in a while cases in which the cord has not been entirely severed have made good recovery.

"Pay cases" eventually began to come to the office, but there was some aggravation associated with almost every one of them. An old bachelor came in one day and asked to have his appendix removed, as he was just starting for a trip around the world and was worried with the new popular fear. On examination it was apparent that he had never had trouble of

any sort with his appendix, and decision was made against operation. He was quite indignant, and said he was prepared to pay whatever my fee would be, and did not see what the surgeon had to say about it under the circumstances. He was advised to keep his appendix until he really had appendicitis, and I would then charge him twenty-five hundred dollars and be fifteen hundred dollars in,—sort of saving him up.

People have different views about the severity of this particular operation. A young woman for whom an interval appendix operation through a short incision had been done, and who was up in a week, said, "Now, Doctor, I want to have you tell my husband that the shock of the operation makes it necessary for me to take a good deal of time for convalescence. Please, dear Doctor, tell him that I should go to Palm Beach until Spring and then over to Southern France, and gradually travel northward to the colder countries of Europe." The very next case might have been one really calling for such a period of recuperation.

On one occasion an old friend, a physician in a small village in the western part of the state, telegraphed me to come and help him with a man who had a strangulated hernia. It was a blizzard time in midwinter. The train arrived at about six o'clock in the afternoon. The case was one in which the patient like all people in that village, could not pay a fee of any account, but the doctor was a personal friend of mine who gave time and effort so generously that one really had to join him in spirit. When we started from the house in a sleigh after dark, driving across fields where fences were covered by snow drifts, we could not keep our lantern lighted on account of the whistling gale. About midnight the horse finally became entirely stalled in a drift, so we packed the snow down around him and then burrowed through snow for some two miles more on foot, arriving at the house about four o'clock in the morning,—four

hours for making two miles. The operation was done, and we had breakfast at the house, and then started to return. It was near midday when we finally got back to the doctor's house, and two and a half days of time were expended on the case, in which the fee was fifty dollars and expenses.

A man telegraphed me from the western part of the state to come and care for his wife, stating that Dr. B. wished it. An ovarian tumor with twisted pedicle was to be removed. When I arrived there was no Dr. B. to meet me, but a man in a loose-jointed farm wagon instead. He took me to a small house and then went for Dr. B., who seemed considerably surprised at my appearance. We quickly made arrangements and finished the operation. Dr. B. took me to the train and asked how it happened that I had come up. He was told about the telegram. "Well," said Dr. B., "if Van were as smart as that all the time he would do better in the world. I know that he has not a dollar to pay you with, not even your railroad fare, to say nothing of charges for time and operation." This proved to be the case. It was a twenty-four-hour trip, and paying my own expenses beside losing New York work for the day. Dr. B. wrote later that he asked the man about his sending for me. His reply was: "Why, you said the trouble was terrible bad and you wished Dr. Morris was here, so I went over to the Jacksons and got his address and telegraphed him to come, 'cause I wanted my wife to have the best there was." It is worth while doing something for a man with that spirit.

One question which comes up in this connection may be fairly asked—why should I not go to a distance for nothing and pay my own expenses in order to care for a poor patient if we are living for the purpose of helping people who need us? There is perhaps only one answer that is not sophistical. People living in New York belonging to my clientele might have needed me still more during the time of absence; in

fact, some of the patients under my care no doubt did suffer something from neglect on that day. In addition to expenses of the trip I lost the fees for office consultations on account of being away. It is a question if any one man in the profession should be called upon to suffer personal loss, even though he ostensibly and theoretically stands ready to render service to the ones who need him most, without regard for compensation. One point in the argument would include the fact that surgeons at Buffalo would have been very much nearer, for this particular case.

CHAPTER III

It is really the fault of the profession if people do not as yet understand the nature of professional fees. Some time ago I had occasion to do an appendicitis operation for a gentleman who is known to be generous and of large ideas. The case was one in which gangrene of the appendix opposite to the mesappendix had led to insidious retroperitoneal infection. There was no abdominal rigidity, no nausea, and no true peritoneal sign. I was not at all sure that the case was one of appendicitis or that it demanded operation. One of the family physicians, with his record of blood examination in the case and guided by his diagnostic insight, insisted upon operation at a time when I thought it not really necessary and advised against it. The doctor was so impressed that he and another physician in consultation finally persuaded me to operate next day. I started in with the idea of giving our patient the advantage of a short incision which avoids the complication of subsequent hernia. Finding firm old adhesions, a partly gangrenous appendix, and a thick infiltrated mesentery with retroperitoneal infection, the operation really called out all of the technical skill and judgment which I possessed. When the time came for sending the bill it seemed to me that a fair charge in the case would be five thousand dollars. This would have been no hardship for the patient, as he had expended more than that amount upon lawyers for investi-

gating the security of bonds for investment, and it seemed to me a small charge for investigating the security of an operation which might save life or lose it. Our whole procedure in the case was life saving, differing from the lawyer's procedure, in not only saving property but life also. In view of the fact that the diagnostic insight of one of the physicians had furnished the primary motive which led to action and at a critical moment, it seemed to me better to ask the patient to send me one half of five thousand dollars, and to inform him that the family physician deserved the other half. This physician was a man of the very highest character who under no circumstances would have accepted a commission had he been working in association with the kind of surgeon who would have given a commission. Too many of the other sort working in collusion might easily have persuaded that patient to pay five thousand dollars, beside impressing him with a higher idea of value of services,—(more people pleased all around). The family physician sent his own bill for services, as did another consultant. For some weeks no response was made to my bill, or to my letter explaining the circumstances, and I learned subsequently that my patient was offended. Finally he wrote stating that he had made inquiries, and found that the average fee for an appendicitis operation was one thousand dollars, and that in the case of a member of his family a famous New York surgeon some years before had charged that amount. I learned upon inquiry that the previous case was of an average sort calling for an average fee. The patient was not aware of the special nature of his own case, and could see no reason why it should call for any special charge, although he paid my part of the bill and we remained friendly. As a matter of fact a charge of five thousand dollars for operation for an intra-abdominal infection of almost any sort is a small charge for any man

to whom it means no deprivation. Come, now! Who says me nay? This typical case I quote as indicating that the public is not as yet educated to look upon the services of doctors as it looks upon the services of lawyers. It is another instance of the observation which is often made that property is held to be of greater value than life, as a result of some fundamental instinct. One reason why the instinct remains unmodified is because physicians in their attitude toward a patient introduce a friendly personal interest, and this is at once capitalized by the business man. He finds no such opportunity to capitalize the *Geist* of the lawyer. The personal interest and good nature of the doctor having been capitalized are then set by the patient to his own credit account. This must always be the case unless we seriously take charge of a situation in which the esthetic comes into conflict with the economic in our work.

The fact that property is held in greater value than human life instinctively is demonstrated in a curious way by people who do not intend to pay their bills. Take, for example, a case of chronic headache. The expense of various tests, examinations and consultations is large because so many experts are required. A man will hesitate to go to all of this expense for a member of his family, and women are notoriously economical in relation to doctor's bills. People who do not intend to pay their bills, however, will send for the entire list of experts in the most lavish way in a case of this sort. The phenomenon is to be translated in terms of meaning that property is held to be more valuable than health by good citizens at least.

People do not understand the value of surgical service in a comparative way at all. One day an old acquaintance came in to have a mole removed from his face. It evidently had been troubling his mind for years. I froze the mole with

ethyl chloride, removing it in a moment. For such a trifling operation for a friend I did not even think of making any charge, but as he started toward the door and asked what my charge would be, I said jokingly, "A thousand dollars." He took it seriously, and asked if I would mind taking his check for five hundred dollars then, and allow him to send the other five hundred a couple of weeks later. We finally compromised by my letting him pay my ordinary office consultation fee of twenty dollars. Some one may say that he was peculiar. That is true in a way, and yet he was a man of means acquired in his vocation as a contractor, and a man who was even accused of shrewdness by rivals. The mole had very likely interfered with his marrying, and what was worse for him perhaps, it had been an obstacle in his daily shaving. A fee of one thousand dollars for instantaneous relief from something which had made him morbid appealed to his state of mind rather than to his habit of estimating comparative values in merchandise. Since that time I have learned that "beauty specialists" actually charge and obtain larger fees than the one which was mentioned jokingly to my friend, and for about the same sort of work. It is probable that beauty doctors make a good deal of ado about the matter when dealing with a vain and silly individual who is fearsome.

I once had occasion to do a difficult operation for the son of two good people who had come on from the West. It was a case in which a very good fee would have been permissible. The physician of the family said: "Now, these people are perfectly well able to pay properly for the services, but the old lady is thrifty, and if you send them a bill for more than one thousand dollars she will make a great outcry and it will hurt me." In accordance with his suggestion, I sent a bill for that amount. One of the nurses, Miss L., told me of the circumstances attending the receipt of the bill. The envelope

was opened by the careful wife, who was a little near-sighted, and on glancing at the bill she exclaimed, in a tone of distress, "A hundred dollars! My! My! Don't these New York doctors know how to charge!" The nurse replied, "Perhaps it would be better for you to put on your glasses, for I feel quite sure that you have not read the amount correctly." Incidentally I may state that the bill was really paid promptly.

In one case in which I charged a man two hundred and fifty dollars for an operation for which another cipher might properly have been added (for saving his wife's life), he paid no attention to my letters for some months, and finally wrote stating that the bill was ridiculous, as I had no reputation or standing warranting any such charge,—in fact, no reputation except for overcharging people. Another man for whom I made a rather moderate charge said, after making objection, "You looked so benevolent that I thought likely you would make no charge at all, but that look of yours is a sort of bunco game." (This work also was for a wife.)

I was reminded of a conversation reported from a country dentist's office when an old fellow dropped in to ask about prices.

"How much do you charge for pulling out a tooth?"

"Two dollars with gas and one dollar without gas."

"Say! It don't hurt so terrible bad without gas, does it?"

"It only hurts for a couple of minutes."

"Well, I guess I'll choose it without gas."

"Very well: take a seat in the chair, please."

"Oh, it ain't for me, it's for my wife. She'll be here pretty quick."

In relation to bills, one will have good patients and mean ones. Two or three examples will suffice for explanation. I did an amputation of the breast for an old lady in one of the small town hospitals to which I had gone on another case. She

could pay nothing for the services at the time, but expressed her gratitude. Some time afterward when I was again in that town she came to me and asked if she might pay her bill with three chickens which were very nicely dressed, neatly packed in a basket, and decorated tastily with daisies. I accepted them with thanks, but heard later that she had been arrested for stealing those chickens. One must not count upon all of his patients being willing to steal in order to pay doctor's bills. Now for one of the other sort. I was very tired, suffering with the grip, and went out to my country place at Stamford late on a February night, determined to have a good full sleep. It was my intention to cut off the telephone, but was too heavy-eyed and weary to do even that. It was a bitter night, with snow and sleet driving and the wind howling along some three miles of drive. About midnight I was called up on the telephone by my friend Dr. W. P. S. in New York, and this conversation ensued.

"Please come down to the city to see a case of appendicitis right away. The operation has been done, but the boy is dying."

"I am tired and ill, and you had better get one of these other surgeons" (whose names I mentioned).

"Two of them have been here and say the boy cannot live more than a few hours."

"If that is the case, there is certainly no need for my coming in. They are authorities."

Then there was a pause for a moment, and again the doctor said:

"The patient's father is here and says he will pay ten thousand dollars, if necessary, if you will come in."

I decided if he felt so earnestly as that about it, my sleepy farmer would have to be aroused and sent out to a cold barn to hitch the unwilling team on a wild night. On reaching

the city about three o'clock in the morning it was found that when the patient had been operated upon, a method that was commonly in vogue at that time of packing the abdomen with a mass of iodoform gauze had been employed. The boy was moribund from the combination of ileus due to the packing, and from iodoform poisoning. The doctor was instructed to get in an expert anesthetist immediately, to take out the packing and remove all adherent iodoform by dissolving it with oil,—and I then left and went to bed. The patient made a good recovery. I never take advantage of what a man says when he is in distress, and instead of sending a bill for ten thousand dollars, sent a bill for seventy-five dollars,—twenty-five for consultation and fifty dollars for time. The father of the boy refused to pay this bill of seventy-five dollars on the ground that it was exorbitant, because I did nothing and others did the actual work.

Three chickens figured in another instance. An old farmer who had a good deal of money because he had saved it, once offered to pay my bill with three prize Leghorn fowls. There were tears in his voice when he spoke of giving me these fowls in payment for services, and I had to relieve his distress by suggesting that he had better take in three hundred dollars from money that he had out at interest and give me that. The fowls were really valuable and no doubt had an intrinsic value of nearly fifty dollars, and a sentimental value in the old farmer's mind far beyond that. I did not doubt his honesty in combining sentimental and intrinsic value in this matter, and his feeling that he was about to make a great sacrifice in bestowing upon me a product to which he had given concentrated thought upon the farm. The instance was simply one of reversal to habitual lines of thought in a man who customarily had found it necessary to avoid paying out much actual cash. Doctors have so many peculiar experiences

in regard to the payment of their bills that it would be difficult for them to remember all, and I have quoted just a few for purposes of lighting up the narrative a bit.

There is no doubt but the best time for collecting a bill is when the responsible party is engaged with the fear group of emotions, in advance of an operation. Patients often pass sleepless nights, and occasionally commit suicide, because of the fear of the ordeal of a surgical operation, but a few days after the work has been done the patient says: "Pooh, that was nothing!" While understanding the psychology under these circumstances, I have never cared to make practical application and take any advantage of the situation. Nevertheless one cannot disapprove of surgeons who do take such advantage. If they really render valuable service and are properly and promptly paid, both parties are pleased. If one waits until the fear group of emotions has entirely faded away, and leaves the matter of his bill to the calm reasoning of the patient, the latter is very apt to revert to customary modes of thought which include protection of his present interests. Gratitude commonly belongs chemically among the lighter hydrocarbons and follows their laws of diffusion.

It is very difficult sometimes to know how much to charge for services if one does not wish to cause any hardship. A patient came in from the South, for whom I divided a deep and troublesome stricture. The result might have properly called for a good fee. I had no means of knowing the man's circumstances but judged from little things that a fee of two hundred and fifty dollars would be all that he could pay without deprivation. When that was quoted he was overjoyed, and at once sat down to make out a check, remarking at the same time: "You people in New York have treated me mighty white. When I came up here they told me that you would not look at me for less than a thousand dollars, and you might

charge me five thousand, but here I am getting out of the whole thing for less than five hundred dollars."

On one occasion I went to a distance for an emergency operation upon a woman with tubal rupture, saving her life outright. When preparing to leave, her husband asked what my charge would be. I had no means whatsoever of knowing about his circumstances, and asked him directly what they were. He said that if all he owned were added up it would amount to about ten thousand dollars and he had three thousand dollars a year salary. I said, "You can pay me five hundred dollars to cover operation, time and expenses." This was not a fair fee for the sort of work which had been done, but it was one which would be fair under the circumstances which he related. I learned subsequently that he had stated the truth so far as he was personally concerned, but his wife was wealthy in her own right, and could readily have paid a proper fee.

A man will often spend many thousands of dollars in various trips to European health resorts in order to be treated for some internal trouble which is curable by operation. Then when he finally tires of procrastinating, he will object to paying for the operation a tenth of the amount which he has previously expended fruitlessly. One reason why he prefers to expend the large amounts in travelling about is because there is always pleasure incidental to making such expenditure, and it is a sort of long drawn out vacation.

There is no need of attempting to adopt a system of fees for physicians or surgeons, any more than there is need for fixing the prices for the paintings of artists. The fee of the physician is determined largely by the finances of the community in which he practises. In one case I charged a thousand dollars for an operation for which several times that amount would have been proper. The one who was to pay

the bill was a woman, and women are habitually thrifty in relation to any sort of marketing. She sent me a check for six hundred dollars and asked me to accept that as full payment. I was interested in her point of view, as she was perfectly able to pay freely without deprivation, and an extremely clever woman besides. All of our correspondence was sent to three surgeons, with the name of the woman erased, so that it could not be traced, and my colleagues' opinions were asked for publication. The correspondence on both sides was published in the *New York Medical Record* about ten years ago. The debtor finally paid the balance of the fee, and when enclosing the last check, wrote, "My discussion with you has been a friendly one, and so you will not, I am sure, suspect me of acrimony when I say that my feeling about the present excessive charge of surgeons is a general one, and the reflection of a sentiment that is everywhere one of surprise and dissatisfaction. We do not question your ability, but we feel you make us pay dear for it." The case was one in which her son had acute appendicitis with gangrene of the inner coats rapidly on the way to general sloughing. The complete operation was done in ten or twelve minutes through a short incision. I did not see the patient again, and the whole procedure no doubt seemed like a small matter to the mother. If we had argued about the case for a day until peritonitis was well under way, and if I had employed a great incision necessitating daily calls to the country house for a long time, finally bringing the patient through by a narrow margin, leaving him with a hernia for subsequent operation, the mother would undoubtedly have paid me ten thousand dollars without any question. She could in that case have seen that a good deal had to be done. The avoidance of all such complications, and the saving of a life easily and quickly, called out this letter on the part of the mother. She wrote under a genuine conviction that she had

been overcharged, and felt that I had used my reputation as a lever with which to pry money from her purse. The surgeon's fee is not based upon the way in which he uses the knife. It is based upon some point in technic which he thought about when awakening at five o'clock in the morning seven years previously in connection with some similar case.

The legal fee is graded according to the value of property, liberty, or life which is in jeopardy. The same thing should belong to medicine in principle. At one time one of the most famous of the older physicians in Chicago charged one dollar per visit in his office. Another physician a short distance away on the same street charged twenty dollars per visit in his office. Patients would go from one office to the other, paying the respective fees to both physicians without any question, in order to obtain their opinions. I know of surgeons who insist upon the payment of their fee in advance before performing an operation, but this cannot be done fairly to all parties as a rule. One may find that he has quite another sort of case to care for after he gets to work. The case may require the exercise of very little skill or of a very high degree of skill. From a plain business point of view, as one would buy calico by the yard, this sort of thing no doubt would be acceptable to a few surgeons, and to a few patients. As a matter of fact, I really would like to talk over the question of fee in advance in a general way, but most of the time when we are considering the features of a case, we dislike to consider the fee part of it at all, and only have in mind the thought of what we can do for our patient. I have many personal friends among lawyers who feel precisely the same way toward their clients, although the public at large has a very different opinion of the lawyers. That at least is my personal experience, Horace Greeley to the contrary notwithstanding.

Why should the Mayos not make charges like lawyers for

their services? The profession ought not to object to their making a couple of million of dollars a year, for that is no more than is made by men engaged in some other occupations every year, with no greater marshalling of talents, and we should feel proud as a whole profession that men in our midst are capable of setting that sort of an example. They now have to divide up most of their work among assistants, but the cases cared for by the principals might be made to consist largely of those who could pay for master strokes. The Mayos have always given as good personal service to the poor as to the well-to-do up to the limit of their capacity, but that limit was reached years ago, and personal attention must now be given chiefly to cases in which special experience is wanted,—and generously to colleagues who require their services. An additional selection of cases might be made from among patients who could without deprivation pay doctors what they now at times pay lawyers or engineers.

If a man's whole estate is in jeopardy and a lawyer saves it after much work and trouble, his fee is perhaps twenty-five thousand dollars, in a case in which the man will gladly pay that amount. A man's whole estate is in jeopardy again, a strangulated hernia indicates that the man is soon to be deprived of the use of his estate, but a doctor saves the estate for him after a few minutes of work which cost as many years of time and trouble as the lawyer expended in preparing himself for saving the estate. Here the man does not pay a fee of twenty-five thousand dollars willingly, however. This is all wrong, and the fault of a profession the weakness of which lies in its strength.

A physician of large needs requires to be paid dignified fees. His responsibilities are great, and in order to maintain a position in accordance with his responsibilities and to operate the machinery essential for a high degree of usefulness, he

must be able to command all of the expensive resources of the profession. A physician or surgeon with an income of $100,000 per year could employ it all very well in his professional work and not require much of it for his personal needs. The best doctors require little money for themselves.

Commenting upon my suggestion that a fee of fifty thousand dollars would be proper for a certain operation, the editor of one of our popular lay periodicals says that on this basis a switchman at a railroad ought to get a similar salary for letting so many thousands of people pass the switch safely, because the switchman also has to be trained like the surgeon for his work. Taking this editor seriously as some people will, the fallacy is seen to lie in failure to make proper comparison between the degree and kind of training required for the switchman and for the surgeon respectively. Almost any intelligent man of good mentality may be trained to make a successful switchman, but for every one who becomes remarkably adept in surgery, hundreds of well educated doctors fail after expensive trial to become master surgeons. These hundreds have tried conscientiously but have found themselves to be unadapted for the work. The public seems unable to comprehend this part of the subject.

Here are two points of view expressing two sides of a question:

DECEMBER 2, 1912.

$20,000 FEE JUSTIFIED

Many Cases of Appendicitis Demand High Technical Skill

TO THE EDITOR OF THE NEW YORK TIMES:

Under "Topics of the Times" the other day quotation is made of the New Orleans case of Danna vs. Williams, in which suit is being brought for a $20,000 fee in a case of appendicitis. The statement is made that "the operation for

appendicitis is of no special difficulty. Any surgeon properly called good can do it."

Last Saturday a surgeon at one of the New York hospitals, in the presence of visitors, removed an appendix by a difficult operation in a case in which two good surgeons had previously made the attempt and had failed. The patient loses practically a year of time and can never be robust, but there was no fault on the part of any of the three surgeons.

A famous Chicago surgeon who recently died published a report upon fourteen consecutive appendicitis cases of his, complicated by peritonitis, with fourteen consecutive deaths. He advised against the performance of the operation in the presence of this complication. Another Chicago surgeon at the same time published a report upon a similar class of cases in which he had reduced the death rate to about 20 per cent., and since that time he has reduced it to a point below 5 per cent. Both men had about the same professional standing.

Surgeons are considered to be progressively expert if they can reduce their death rate in complicated appendicitis cases 1 per cent. per year for fifteen consecutive years. Many a fine surgeon in a small town where things are "talked over" has had his entire reputation blasted by the results in his appendicitis work.

Aside from the death rate, we have to consider the morbidity rate. One surgeon develops a degree of skill which allows almost all of his appendicitis patients to escape the later complication of post-operative hernia. This cannot always be avoided by the most skilled surgeons, but the hernia rate is such an important matter that surgeons expend a great deal of time and thought in perfecting their technique in relation to this point.

Any surgeon properly called good can operate successfully in the average case of appendicitis. In every series of 100 cases there are many which require the last degree of technical skill on the part of the surgeon, and there are some in which he would like very much to have the privilege of "trying over again just once."

In the Williams case a fee of $1,000 would have been

proper if the case was uncomplicated. It may have presented complications in which a fee of $20,000 is not only justified, but the payment should be accompanied by an expression of gratitude on the part of the patient.

VISITOR.

New York, Nov. 30, 1912.

MEDICAL "ROBBERY"

To the Editor of the New York Times:

The most self-assuring and complacent confession of robbery is the proud acknowledgment of a surgeon who says in The Times that his charge for a special operation is $50,000. That is his price for a few hours work in cutting a patient up and severing his vitals! Where in the world did this surgeon acquire his great art? Did he learn nothing of it from the thousands of great surgeons who have lived before him and whose methods have come down in history? Did he learn nothing from the great institutions of surgery supported largely by the rich?

Counting the sacrifice of life in wars and the interminable struggles of the poor for a living, no life is worth such a fee in this world, though the law says it is. It is well he hides his name under the guise of "Visitor."

HENRY F. K——.

Cranford, N. J., Nov. 22, 1912.

My answer to the letter of H. F. K. would be this:

(1) The price is not for a few hours of work, but for a few minutes of work only, those minutes, however, representing years of effort which have finally led to successful results.

(2) His art was not acquired from a single one of the great surgeons who have gone before. His knowledge was acquired through their aid, to be sure, but his art must be distinguished as quite as personal a matter as the art of

Millais, compared with the art of some unknown contemporary of Millais, both of whom obtained their knowledge but not their art from precisely the same source.

(3) He obtained his knowledge from the great institutions which are supported by the rich, but these institutions did not give him wisdom or master strokes.

(4) "No life is worth such a fee in the world." The principles in this question, it seems to me, relate to the laws of salvage, and I would like to have the matter adjudicated in an admiralty court.

There are two notable elements opposed to the obtaining of fair fees by the physician. Wealthy men are accustomed to being preyed upon, and they become over-suspicious. I know all about it, because in some badly informed localities I am held to be a wealthy man myself, and am subjected to all of the attitudes of mind which are customarily aimed at such men. It has made me uncomfortably suspicious at times, because of an abundance of justification for at least exercising caution when dealing with men.

In my attempt at raising the fee standard for doctors, a rather curious effect has been noted. Many colleagues have quoted my position in order to turn it to their own advantage, when conferring with patients or their physicians. My attempt to give service to the whole profession in this regard has been very injurious personally, although there has been much satisfaction in knowing that little by little I have been useful to the profession. A prominent surgeon is perhaps wrongly quoted as saying he did not believe that any surgeon should charge fees which would give him an income of more than fifty thousand dollars for a whole year's work. I wonder what he is going to do for science (taking the report at face value). It seems to me that he might much better play the game without limit and find in his own personal hands

the means for doing for his profession and for the people things that he cannot possibly do on fifty thousand dollars a year. One would feel almost ashamed of a surgeon who did not perceive urgent need for an expenditure of several hundred thousand dollars per year. He may live on two thousand dollars per year for personal expenses if he chooses. No objection to that!

When attempting to raise standards of various kinds a doctor is apt to meet opposition in the ranks in his own profession. One can usually "make twice as much by charging half as much." The doctor who does this, however, leaves his profession in the lurch and the worse for his having been in it when the time comes for his epitaph. Whatever defeat I have met on this point has been at the hands of colleagues who might much better have said to the patient that their charge would be twice as much as mine and they would render service worth the difference in cost. I have no objection whatsoever to a brother surgeon telling the patient that he will charge twice as much as I would, and will render better service. That sort of thing would stimulate me to efforts at rendering service of still better quality,—a competition in excellence of service. The statement that one will do the work just as well for less money introduces a commercial competition feature, inhibits progress, and leaves the doctor complaining of conditions that he himself has brought about. Either one of the two forms of statement rests with the spirit and character of the individual making it. Doctors are regularly underpaid. They must either stop complaining about it, or else must lend a hand when I try to give them aid at my own personal expense and sacrifice,—which has been pretty large in degree.

It is not unusual for physicians, especially in the smaller towns, to feel that a small charge should be made for service,

in the fear that someone else may get a certain case. This is fallacious on the whole. Patients naturally estimate the value of service by the charge that is made. The tendency to charge small fees on a selfish basis is bad in its results, for the reason that the physician who is working for a low fee unconsciously adapts the value of his services in a most human way to the size of the fee. He is very sure to become neglectful and to do inferior work, when not encouraged by stimulating beverages for human nature. If a physician makes a larger charge than is customary among his confreres in a town, and if he at the same time gives more attention to his cases, he will eventually be surrounded by a clientele of the kind of people who are appreciative of that sort of thing. These people, furthermore, with enlarged views, will then be ready to go on with the support of hospital and laboratory schemes or other plans for widening the field of usefulness of the profession. Not all of the low charges are made on a basis of fear that others may get the cases. There is always a very marked tendency to base charges upon old-fashioned ideas of charity. These old-fashioned ideas of charity are very beautiful in their way, and there is many a Willum MacClure in the profession, but the physician who makes low charges habitually, stands in the way of his own development in usefulness. If a patient really cannot pay much, we are very glad indeed to find opportunities for giving him relief on that score. There is perhaps no physician in good professional standing who will not at once set about getting such a case into the proper channels for help. In fact, the most expensive doctors are commonly the ones possessing best facilities for making the burden light for patients who need to have consideration shown. Such a doctor's independence gives him a free hand for helping others. First-class services are to be obtained as readily as third-class services in our profession.

If seven-tenths of one's work in the medical profession is done for nothing it is not wholly generous after all, because the doctor needs experience in order to give any patient ten thousand dollars' worth of service, no matter whether the patient can pay for it or not. The generosity of charity work is incidental to what we wish to do anyway. We are thankful for this humane incidentality, although no sentiment need be wasted upon a generosity which is quite as beneficial to the doctor as to the patient.

It was a surprise to me to discover that the charging of small fees for high-class work by physicians might represent fundamental selfishness belonging to the fear group. The observation was first made when I had occasion to send a bill for services in a case in which bills would be paid by a department of the state. Some of the interested parties proposed to send rather large bills, but to this I objected, saying that to me the state was no more impersonal than a private individual. Men who decide not to send large bills to private individuals are moved by motives of fear, fear that criticism or at least displeasure will follow, and their incomes in the end will be injured. They have no such fear when sending bills to be paid by the state. The psychology of the situation points to a selfish motive when sending large bills to the state or small bills to an individual, for similar kinds of service rendered. The selfish motive in sending a small bill to a private individual is based upon fear. We cannot make new and great progress for our profession until the pragmaphile takes charge of this question and recognizes motives at their intrinsic value, rather than at face value. If we make small and insufficient charges for expert work because of fear, and if we pretend that it is for the interest of the people that we make these small charges, we are volplaning. Our way to climb toward the free blue heavens, to look upward as we go, is to make large charge

for services to private individuals in cases in which we can make services worth more than they cost that individual.

One result of the charging of small fees by experts is that bright young men, some of the very best, are crowded out of the profession and have to take up something else. Another result is that experts become so overburdened with work that they cannot give proper detailed attention to cases, and at the same time they may not secure enough income to give themselves all possible advantages of travel, armamentarium, and laboratory and library work. Thus all three—experts, younger men, and the public—suffer as a result of a system of charges which has prevailed in the past.

A year or so after beginning practice a patient with mammary tumor was sent to me for operation by a doctor whom I knew in Pennsylvania. After examining the patient a fee for the operation was stated and arrangements were made for doing the work. The patient disappeared, and I learned subsequently that she was operated upon in Philadelphia. A year or two later I happened to run across the husband of this patient, a lumberman of means, and on asking him how his wife was getting on, he replied, and added, "Young man, you ought to have had that case yourself. Now, let me give you a piece of advice, for you are not long in the profession and I have nothing to lose or gain by giving you this advice: When people think they have something important the matter with them they do not propose to have the work done for any such small fee as you mentioned. If you had said that your charge for the operation would be five hundred dollars or more, I would have paid it gladly, because our doctor at home had impressed us with the idea of your being the right man. When you stated that you would do the work for one hundred dollars my wife instantly lost confidence. We had talked about a different figure. She did not feel that you appreciated

the importance of her case or that you could be prepared to render skilled service." As a matter of fact, the sum of one hundred dollars in real viable money looked pretty big to me at that time. It might have been only the head of a pin but it was close to my eye in those days. In the early years of practice I was so gratified at being chosen to take charge of any case and so overjoyed at the result of successful treatment, that it required an effort to bring myself to make any kind of charge whatsoever for services.

If I were to make a choice of operations to which all of my time would be devoted they would be the most difficult and dangerous ones. Were a choice of patients to be made I would choose mothers with little children or Christian Scientists. Were I to make my choice of people who are to pay fees I would choose professors at the universities who could not pay more than a hundred dollars for any operation without suffering deprivation. Almost any surgeon after years of experience will probably agree that such ideas are not odd. Difficult work gives the surgeon opportunity for exercising his acquired skill and judgment. The woman with little children is so determined to live for their sakes that she seems to possess supernatural powers for recovery. A Christian Scientist may not even allow nausea from the anesthetic to follow an operation. He will lessen the normal discharge of energy from brain cells in response to pain. This direction of the will is a very effective help toward lessening the complications after operation. The university professor who pays only one hundred dollars for a ten-thousand-dollar operation is usually grateful and intelligently appreciative of the character of service rendered. This is not always the case, but he at least belongs in the intelligently appreciative class. There is almost always dissatisfaction expressed over the charging of a fair surgical fee,—so commonly at least that the surgeon would

really prefer to have the hundred-dollar man to care for, although it would be immoral for him to make the same charge for salvage of a great estate, with the owner's life thrown in. The public will understand this question to-morrow.

I have always had a number of Jews in my clientele since the earliest days of practice, and they have been among the most faithful adherents even now that my work for many years has been wholly surgical. They come in to get my advice about "medical doctors." When there is surgical work they beat me down on charges and employ all sorts of subtle Oriental methods for escaping from payment for services, but I have for them a peculiar affection, and when the time comes for my departure, there will be no more sincere mourners than some of my old Jewish clientele with whom there is always trouble over bills. It is well for every man to stop once in a while to think of what sort of a collection of mourners he has in training for the final event anyway.

A woman in fashionable society who found it difficult to obtain ready cash proposed to send me wealthy patients from time to time if a percentage of the fees would be forthcoming. Her pride of name and of social station had to be maintained, and wide doors were open to her because of family prestige. I asked if she actually knew of any doctor accepting such a proposal, and her reply was in the negative, but she told me of occasional sources of income along this line from tradespeople, and was quite convinced that at least one doctor of standing would help her find means for entertaining in good form. She had persuaded herself that it would be rendering service all around because "no one but a really good specialist would be recommended."

How shall one make charges for professional service when working for relatives, or for servants in the families of our clientele? When working for relatives I think it best to make

an average charge of the sort one would make for anybody else. This is apt to insure better medical attendance. Relatives often go to a physician in the family for two reasons; one because they think the bill will be small, and the other because they think his feelings would be hurt if they were to choose anyone else. Sometimes it is because they have confidence that the prophet is really a man with honor in his own country. In regard to servants in a family, we can afford to let them off with a trifling charge. It is a privilege to render service in this way. The family may wish to have you in the house instead of some doctor who has been called by the employees on their own account. Their doctor may be a first-rate physician but not accustomed to paying his patients the compliment of appearing with polished shoes and neatest linen. If he wears things that "will do" he is not often wanted in a refined home, no matter how good his professional qualifications may be.

It is very difficult to charge for work if a patient dies, even though the skill employed has been of high degree, the judgment correct, and the responsibility much greater than it would have been in a more hopeful case. Nevertheless one feels hesitation about sending a bill to an estate for services rendered.

The greatest triumph of surgery to-day, like the greatest triumph of medicine, lies in finding ways for avoiding surgery. The public does not know of the way in which members of our profession look at such matters, but there is always an effort on the part of any surgeon of experience to avoid operation in a case in which some other resource may be substituted for it. In cases of gastric and duodenal ulcer we have taken three positions in the short period of about a decade. Medical treatment at the hands of experts gave better average results than were given by expert surgical treatment.

Then the surgeons forged ahead and completed such wonderfully fine technic that the medical treatment for gastric and duodenal ulcer was held almost in disrepute among some authorities. Resources which have been newly made available through the radiograph, and laboratory methods of examination and analysis, are now giving the internist such advantages that medical treatment in this field has again superseded surgery,—after the surgeons had developed ideal methods of procedure. Men who are three years behind the times in our profession are largely engaged in doing what the leaders have discarded. The still newer knowledge of the fundamental toxic cause for ulcer of the enteron is shortly to allow us to dispose largely of both medical and surgical treatment, because we are about to prevent the development of these ulcers in the majority of predisposed individuals. Changes are taking place with such bewildering rapidity that the doctor is out-of-date on the subject shortly after he has brought himself up-to-date. The surgeon has been relegated to the past so far as leadership in treatment of ulcers of the enteron is concerned, but during the short time when he was leader he developed a perfection in technic which serves the patient well in those cases in which his services are still required. The surgeon is glad to withdraw from the field as a whole, when he recognizes a better generalship on the part of an expert internist who avoided the tendency to drift into surgery, and who is now the better doctor in consequence.

I recently read in one of the daily newspapers a critical letter stating that the chief reason why physicians are in favor of vaccination is because it brings them something of a stipend. Curiously enough, Queen Charlotte said that she would like very much to find a physician who would interest himself in Jenner's new discovery. Her Royal Highness did not believe any could be found who would be willing to give

up their profitable practice with smallpox. Pay your money and take your choice between these two views!

A doctor will not with malice aforethought respond to ways which he knows will bring him wealth, if they are at the same time destructive to professional standards. His errors in this regard are due to thoughtlessness. If a surgeon of well established reputation were to make it known that he would do all sorts of surgical operations for one price,—one hundred dollars for each case let us say—he could soon be making five hundred dollars a day without much difficulty. Relatives of the poor would see that the hundred dollars were raised, and the well-to-do would quickly respond to such an opportunity. If a lawyer of established reputation were to make it known that he would settle all estates on the one per cent. basis he would soon have riches coming to him.

The sudden volplaning slant toward commercialism in some phases of medical practice is only temporary. It is due to the inability of some doctors to put in new engines for making rapid adjustment to changed conditions, following the rapid development of preventive medicine which has taken away so many cases from the clientele of graduates of the cheaper proprietary medical schools. (These schools now becoming abolished.) I have as much faith in the fundamental honor of the medical profession as I have in the fundamental spirituality of the clerical profession. Commercialism in a profession is only one of those cataclysms which occur in the course of any rapid evolution. Adjustment upon the honorable basis, and a truly professional basis will take place again. Physicians will soon observe that great new fields of practice are being opened, at the very time when old paths are being boarded-up by preventive medicine, but the physicians who are to follow the new paths will require a high degree of education. If a young doctor is not quite sure whether he

is fine or not, he may ask himself if he employs any method (aside from professional efficiency) as bait for attracting patients toward his hook. If he employs any expediency bait methods he will know that he is a cull, something that did not grow well.

Commercialism in our profession is like a late spring frost in the garden, blighting that growth of public esteem which in confidence had put forth its trusting shoots. People have confidence in doctors as a general proposition, otherwise there would not be 150,000 of us in the United States at the present time.

Shall we fall into a ditch "because others are doing it"? Not unless we are guided by instincts of the *Ovidæ!*

When Metchnikoff showed that we might kill the most harmful groups of colonic bacteria through the aid of an useful microbe, the *Bacillus Bulgaricus,* commercial houses began to vie with each other in putting upon the market various cultures of the Bulgarian bacillus. Most of these cultures were worthless at the outset, or soon became worthless for reasons well known to bacteriologists. Meantime the advertising went on, tons of cultures were sold, and thousands of people meeting disappointment lost confidence not only in the new and correct general idea of Metchnikoff, but in doctors in general. The truth in this matter is known to some doctors. They are familiar with ways for getting and employing the genuine living Bulgarian bacillus, and for helping some of their patients who suffer from diseases of chronic toxic origin. They make a study of the responsibility of certain manufacturers, instead of dropping one of the greatest among our new subjects. The commercial feature, however, in this one subject was destructive. A man of judicial temperament would probably say that genuine business enterprise in attempts at really getting up-to-date may be unconsciously

conducted harmfully by men who lack scientific training, but who mean no harm.

Why should physicians not seek to make financial profit from discoveries? Instance the example of Friedmann with his turtle bacilli. The idea of making profit led to his securing newspaper notoriety before it was known whether the method of treatment would be beneficial or not. It was reported that at one time in New York he treated twenty new patients in a single day and demanded one hundred and fifty dollars in advance from each patient. This sum of one hundred and fifty dollars in many cases was secured through great privation on the part of dutiful brothers, sisters, fathers, and mothers of patients who had previously expended all of their own money, and had lost earning capacity on account of illness. Most patients of this class were of the sort who would be likely to receive no benefit from the treatment, and might be made worse. They suffered tortures of mind from the depression which followed realization of the fact that the last money was gone and they were not to be helped. Several committed suicide. A physician of the sort who would seek to gain financial profit from a discovery is in great danger of turning to the matter of commercial interest, and forgetting his principles of professional spirit.

Why is it not desirable for physicians to receive attention by the daily press? Instance again the object lesson of Friedmann with his turtle bacilli. Wide publicity was given to his unfounded claims, with the result that hundreds of thousands of sufferers were inspired with vain hope. Two hundred tuberculosis patients are reported to have come in a single train load from New Mexico to consult Friedmann. Most of them could not be seen by him at all, and we heard about pitiful cases of self-sacrifice and deprivation on the part of relatives who tried to assist sufferers from tuberculosis at this

time. The true physician would give his heart and his time freely in many of the cases in which Friedmann took dollars instead.

Why should a physician not hold for himself the secret of any process in medicine? Note again the object lesson of Friedmann with his turtle bacilli. Thousands of sufferers from tuberculosis swarmed upon us physicians, asking to be helped in the "new" way. It was enough to wring the heart of any man with human feeling left in his breast to hear the appeals that were made to me alone. If the methods employed by Friedmann had been really good, and had they been reported in responsible medical journals, with carefully detailed records of failures, competent physicians in all parts of the world could have given their patients the benefit of such part of the treatment as was proven to be good.

Why is it best to await the decision of responsible medical societies before announcing the value of a medical discovery? Note again the object lesson of Friedmann with his turtle bacilli. In responsible medical societies, the peers of any innovator, who are competent to make decision, are sure to take up his subject critically and work it out in detail. They find where a method will be of advantage to the patient, and where it will be of disadvantage to the patient,—deciding where it can be employed with reasonable hope of success, and where it cannot be employed with reasonable hope of success. There is, to be sure, a great deal of jealousy among men who are anxious to be most useful to the public. They attack the advocate of a new theory unreasonably at times. Whenever a method is fundamentally sound and can be proven to be sound, it is bound to take its proper place. Forces that are exerted for and against a subject are very certain to act by elevating any worthy subject to a permanent position. Friedmann would not wait for the decision of responsible medical bodies, and

did an incalculable amount of harm, by inducing patients who were not suitable ones for his treatment to receive that treatment upon a commercial basis. All of these questions are beyond the comprehension of the public, and there probably will never be a time when the *hoi polloi* will appreciate the nice distinction between true medical professional spirit and vulgar commercial spirit. The more jealousy a physician arouses the more sure is he of obtaining final recognition for his new principles. That jealousy which is manifested by really-great physicians is a noble and generous kind of jealousy.

Controversy over the Friedmann question has been of value on the whole because public interest was stirred, and when it settled down much of it came to rest upon a basis of higher information. That was the compensation.

I was fishing with a dear old friend one day, a grocer. While we were chatting at luncheon time he told me of giving a secret commission for the purpose of getting a certain order. I asked him if he did not think this dishonest. He replied, "Yes, but it is the only way to compete, and is the established part of a system." "Then," said I, "there are too many grocers, and some of them might better go to planting potatoes for a while." To which he responded, "We have to follow the system, and it really is sordid. That is why I envy you the mental attitude that belongs to a profession. As a child I was taught to look to the Saviour, but in later years I could not make Him fit into the idea of practical business. In your profession it can be done, and we look up to you doctors as the next thing to the Saviour." I did not tell him of saviours who were reported to give secret commissions. We doctors may not have quite enough confidence in our superior qualities to look upon each other as saviours, but if we can manage to allow the laity to hold that beautiful illusion, *tant mieux!*

Shortly after publication of the substance of this note in a letter to the New York Times, a number of responses were made. Two that were characteristic, appearing in the Globe, in New York City, July 18, 1914, and in the Journal, Peoria, Ill., for August 4, 1914, are here presented:

"PREDACEOUS SURGEONS

Editor of The Globe, Sir—Dr. Robert T. Morris recently wrote a public letter commenting upon the fee-splitting evil.

I wish to take exception to that part of his letter which says: 'People who pay too much for surgical operations and who undergo unnecessary surgical operations suffer properly in paying a penalty for their lack of discrimination in the selection of their physicians.'

How can the public discriminate? What means has it to ascertain whether or not a physician belongs to the 'nobility class,' which, as the doctor says, has all of the finer professional instincts?

The public depends upon the state to license only men who are competent and of moral character. It is guided by financial success, which it believes to be the result of ability and probity. Most families have no idea that the financial success of their family physician is due to 'commercial exploitation' of those who trust in them. When a family physician states that the surgical operation is necessary, recommending a surgeon who in his opinion is most competent to perform the same, he invariably impresses it upon the family that he is guided only by consideration for the patient's welfare, and that he is actuated by the highest motives and governed by a high standard of professional etiquette.

Who would be so base as to impute the slightest selfish motive to such noble action; who would dare to harbor a thought that the professional gentleman is recommending a certain surgeon or advising an unnecessary operation just to enrich his pocket?

I must admit that such a thought never came to me and that the admission from a physician that such practice exists comes

as a great shock to me. The loss of money is perhaps the least of this evil, but what of the physical and psychological suffering of the patient, what of the anxiety of the family? How many patients may have died from the results of unnecessary operations?

Dr. Morris asks the people to do nothing more than to listen to the demands which are made by responsible physicians for higher education and for protection of the public.

How can the public tell who is a 'responsible physician'? Does not every one hold himself out as such until he is found otherwise?

Is not the correction which emanates from the higher inner circles of the medical profession itself, which Dr. Morris recommends, too slow and ineffective?

If a physician is expelled from 'fellowship in the American College of Surgeons,' as Dr. Morris says he would be if found guilty of fee-splitting, the general public knows nothing about it, and he can continue to practise and betray the trust of his unfortunate victims the same as before. If such expulsion were followed up by criminal proceedings barring both parties to the fee-splitting from the practice of medicine and surgery, especially in a case of unnecessary operations, it might have a wholesome deterring effect upon would-be offenders. The legislature should take immediate steps to protect the lives and limbs of the public from the menace threatening them through the cupidity of unprincipled physicians.

New York, July 9. EMMA N. POLAK."

"SPLIT FEES

Topeka Capital: Kansas is not the only locality where there are signs of an uprising against the evil of surgical fee-splitting. The same thing has broken out in New York City. Replying to some comments in the New York Times a leading surgeon of the highest class, Dr. Robert T. Morris, discusses the issue, not from the point of view of a question to which there are two sides, for this eminent medical leader does not recognize any defense for the splitting of surgical fees, but

whether it is a question to be taken up by the public or left to be settled locally by the medical profession. Mr. Morris takes the latter view and states that the evil is being corrected in New York.

However that may be, it is not being corrected nor dealt with within the profession in Kansas, where fee-splitting is the rule and not the exception. Physicians of high class fear to attack the practice, immoral as they acknowledge it to be, because they hesitate to attack what amounts here to the entire medical profession, with few and rare exceptions. County medical societies refuse to take up the matter, voting resolutions of investigation down, because they know too well what investigation here means—the exposure of an entire profession. Says Dr. Morris in his letter to the New York Times:

'Our profession, like others, is divided into two classes, the expedient and the nobility. The nobility consists of those members who are inspired by the higher professional instincts; the expedients are on a parallel with the shyster lawyer in the legal profession.'

Only the latter class of physicians and surgeons in New York City, so it appears from Dr. Morris' testimony, practice fee-splitting. The situation is entirely different in Kansas.

This is a matter upon which it is necessary that a fight be made. The young physicians probably will find it devolves upon them to free the profession in this neighborhood of a practice that professional ethics abhors but that professional men practice. It is the custom hereabouts for the surgeon after an operation to hand the family physician, or the physician who brought the patient to the hospital, from 50 per cent. of the total surgical fees upwards. On the average more than half of the fee charged by the surgeon is given back to the family physician for bringing the case. It is a practice that the public will not long tolerate and the profession should not."

When two doctors compound with one another to divide a fee without the knowledge of a trusting patient, who thus becomes a victim, we have an example of the second step in phylogenetic brigandage, which dates back in race history to

the individual robber and to brigandage between feudal barons. At the present time reversal to the primitive type is demonstrated in its first stage in the individual robber who attacks a single victim in the dark alley. The next stage consists in the formation of a political clan which plans to rob the state in public-works contracts. A third step would be represented by a combination of manufacturers who secure the enactment (through the aid of politicians) of unfair tariff laws which make the citizens of a whole country their victims. A fourth step consists in the preying of one country upon another in times of war, through claims for excessive indemnity in money or territory. In the entire series of instances, then, we find fairly well demonstrated a spirit of phylogenetic brigandage which is still remaining as a relic in modern society—very much as a branchial fistula sometimes remains as an ontogenetic relic in our anatomy. It will be seen that doctors who split fees stand rather low in the relic scale, being only one remove from the single robber with his private victim in the alley. We may remain full of courage and hopeful, because history shows clearly enough that in the course of social evolution we have moved as far away from the brigandage of feudal barons, as we have anatomically progressed beyond the salamander, which occasionally leaves a branchial fistula in the human neck.

Fee-splitting will never be entirely abolished, because there will always be men in the profession who make what is called a gentleman's agreement in immoral procedure. "It is just you and I," they say. "We understand each other and know the easiest and pleasantest way for doing things." It is the "just you and I" spirit which is at the basis of most of the defects in human intercourse. The customs of the people are sophistically taken to mean the customs of two people, but "you and I" may constitute gametes for the nit of a clan.

I have a circular report published by a surgeon from the central part of the country. Part of this instructive report reads as follows:

"Some years ago I published a paper, read before the Missouri State Medical Association, in which I advocated these things. (Division of fees.) For this I have been bitterly assailed by my professional competitors and enemies. Feeling that the sentiment of the great mass of the profession is in favor of the plan advocated, I sent out ten thousand letters to doctors of the Mississippi Valley, asking expression of opinion upon the following conclusions. After a most careful study of the subject of division of fees (from the standpoint of one who has been a country doctor as well as city specialist), I have reached these conclusions: (Italics which follow are mine. R. T. M.)

"1. It is not right for the doctor to *demand* nor the specialist to pay a commission.

"2. But—there is a vast difference between paying a commission for all business supplied, and dividing the fee under *appropriate* circumstances. For a division of the fee is not only proper, it oftentimes is imperative, if an injustice is not to be done the family doctor.

"3. In ordinary consultation no division of fee should be thought of.

"4. In cases simply referred to the specialist for treatment no division of fee is *usually* proper.

"5. When a specialist and doctor jointly attend a patient, division of the fee is honorable and just—*no attempt* being made to conceal the *business* from the patient.

"6. When the specialist operates in the home of the patient, in city or country, and the physician assists and assumes the responsibility of the after-treatment, it is the duty of the operator to ascertain whether or not the regular

attendant has been or will be paid sufficiently for services rendered—if not, (*Why not?*), then divide the fee equitably.

"7. When a physician leaves his practice to accompany a patient to the city, in order that a competent specialist be secured, it is right for the specialist to find out whether or not the doctor has been, or will be paid for his time and trouble —if not, (*Why is he not to be so paid?*), then divide the fee in proportion to value of services rendered."

The results were as follows:

	"Total sent	Favoring division	Opposing division	Declining to answer	Returning blank	No replies
Arkansas	650	507	12	31	39	61
Colorado	170	142	1	3	5	19
Illinois	2,000	1,631	43	34	77	215
Missouri	2,000	1,711	64	31	54	140
Indiana	400	327	14	19	20	20
Iowa	830	709	33	21	31	36
Kansas	950	841	20	32	34	23
Kentucky ...	300	240	6	8	9	37
Louisiana ...	150	109	2	3	5	31
Mississippi ..	150	130	8	3	4	5
Nebraska ...	150	124	4	1	2	9
New Mexico	130	103	4	3	6	14
Oklahoma ...	800	670	10	19	29	72
Tennessee ..	260	214	8	6	20	12
Texas	1,300	1,084	32	41	60	83"

I wonder a little bit if our investigator was not over-energetic in his search for the noble truth, and if one thousand circulars would not have sufficed, instead of ten thousand stating that he was ready to divide fees. At any rate, it is a hopeful sign that a fair proportion declined to answer, or replied "no," or expressed their opinions by returning the blank. This proportion of straight doctors probably represents about the proportion of straight engineers, straight bankers, straight merchants, and straight lawyers whom we

would find in the same part of the country. It is these straight men in a community who can be depended upon to furnish leaven, and to set standards, and who are revered by young men of high ideals who are looking for heroes. Thank God there is plenty of the romantic among men in our profession, and they are always looking for heroes.

Question (1) requires no comment, excepting to call attention to the joker word "demand."

Question (2)—Leaves "appropriate circumstances" to the conscience of a man who wants money.

Question (3)—Is very proper.

Question (4)—Is proper with the exception of the introduction of the word "usually."

Question (5)—Is the most important one of the series, and contains the courtesy which vice pays to virtue, in the negative statement of no attempt being made to conceal the transaction from the patient.

Question (6)—Makes it the duty of the operator to ascertain if the regular attending physician is to be paid sufficiently by the patient. In my opinion it is not at all the duty of the operator to do this. It is the business of a dignified attendant to look after this matter properly himself. The only duty on the part of the operator is to use his judgment in determining whether an operation is really desirable or not, and to decide upon the best thing for the patient. He has been selected for that purpose alone, and for no other. He has not been selected by the patient for the purpose of using judgment about the fees of somebody else. That is a very nice duty belonging to the family physician himself.

Question (7)—The physician's responsibility ends with getting his patient into the best hands, and the specialist's responsibility ends with giving the best service to the patient.

I am unwilling to believe that such a large proportion of men

are really crooked as the ones favoring division of the fee in this list. It is my impression that thoughtlessness and lack of proper education will account for the large number of men who did not express opinions in accordance with high standards. The system of cheap medical education, and the turning out of large numbers of men from proprietary medical colleges which has prevailed in the past, will account in large degree for the points of view which are developed in the course of competition.

A prominent surgeon on the Pacific Coast told me that fee splitting was practically universal along that coast, and the only way he could see out of it was for certain men to group themselves together and allow it to be known that under no circumstances would they split fees. The ones who are shrewd enough to see the advantage of being honorable will find very quickly the direction of paths chosen by the people.

When speaking with men of whom I had heard as splitting fees, they sometimes replied that it was not a feature of their work at all. They had not done it half a dozen times in their lives, but circumstances sometimes occurred in which it seemed to be proper. They were undoubtedly honest men, and did not realize the moral effect of splitting fees, upon some unusual occasion. The mere fact that the instance had come to my ears indicated its wide and far-reaching effect—more marked perhaps when it is not expected of a man. A physician who recently came to the office with a patient from the South, told me that he had been strongly advised to consult a certain specialist, but would not do so because he had been informed of a case of fee splitting on the part of this specialist. I happen to know that the latter is not the sort of man to engage in any questionable procedure at all, professionally, but the mere fact of his having split a small fee on one "proper occasion" led to his losing a large fee to my definite knowledge, on this later

occasion. Aside from the money loss, he suffered a loss of prestige, because the matter was commented upon—how widely I do not know.

One of the compensations for graft in the medical profession, aside from the digging up of a lot of neglected surgical cases, has been the raising of legitimate fees. In former times the specialist was the prey of the general practitioner in quite another way than in having to divide fees. He was forced to contribute to the physician's reputation for generosity, but at his own expense. It was customary for a physician to say to his patient of good circumstances: "Now I know the specialist whom we want to employ in your case, personally, and will see to it that you get off easily. He will do what I ask." This customary procedure gained the gratitude of the patient, which was set down to the credit account of the physician.

Preparations may be made to have some surgical operation done when physicians in charge of the case are all convinced of the necessity for an operation. The surgeon who is perfectly free may find that the case is not one for operation at that time, or for operation at any time. If there were to be any commercial warp to his judgment, one may readily see where the temptation would appear. Then again, if the expert specialist were to offer a commission for cases, any poorly qualified specialist who offered a larger commission would get more cases in a locality in which the moral sense of the profession was not of high character. Competition would soon be on the usual commercial basis instead of on the high plane of usefulness to the patient. There is no objection to a division of the fee in cases in which several physicians participate, provided that the patient is fully aware of the entire transaction. That is the crucial point and the pivot upon which the moral side of the matter rotates. Even this may

not often be done, for the reason that very few cases are so distinctly outlined that one can know in advance just what expense items may be introduced.

I remember one case in which a physician intimated in my side room that he would like to be paid for his time in coming on with the patient. He had previously written asking if I would do a rather complicated hernia operation for a patient of his for two hundred and fifty dollars and I answered in the affirmative. When the patient and the doctor arrived, however, it was evident that the patient was a man of the sort who did not need any charity. He was one of the blunt, outspoken men of that comfortable sort to whom one could say almost anything and allow him to say anything in return. After making an examination and finding the case a proper one for operation I said to the patient, "Now, your doctor has not arranged about the fee quite right. The operation will be done for two hundred and fifty dollars, as agreed, if that is your wish, but I will state exactly my feelings in the matter and you can tell me yours, and the final decision will be all satisfactory." I asked how much he was paying his doctor for coming on. Turning to the latter, he replied, "I am not paying him anything. He is a friend of mine who is willing to come here for the sake of seeing the operation." "Now," I said, "the proper thing is this: You should pay me one thousand dollars for the operation, and you ought to pay your doctor two hundred and fifty dollars for his time in coming down." "Why, that is all right," said the patient without a moment's hesitation, "I am glad to do it."

The good doctor is constantly on the alert when guarding his patient's interest, even to the point of overdoing protection and miscalculating on possibilities of injustice for the expert. The division of fee plan would destroy this kindly protection of the patient's interests.

So long as the mention of division of fees in conversation brings a flushed cheek, the profession is safe. Our leaders do not wish to have their cheeks flush when referring to any part of their personal conduct.

Burton J. Hendrick, in a capital article in McClure's for January, 1914, describes the area of fee-splitting. He states that in the South and in New England this abuse has not reached large proportions. The principal area reaches across New York to Ohio, Indiana, Illinois, Kansas and Nebraska, then shoots upward to the Dakotas and across to California, where the art has reached its highest development. It is probable that articles like that of Mr. Hendrick for the popular reader do good on the whole, even though the entire profession is apparently smirched. The people when awakened will eventually use better discrimination in selection of physicians, and that is precisely what the better element in the profession has always implored the public to do. It is probable that Puritan conscience in New England, Dutch honor in New York and cavalier pride in the South have stood out fairly well against the shifty sands of "business expediency."

A very insidious circular has recently been sent out to physicians by members of a certain Western Hospital Association. Doctors are informed that if they join this hospital association they will have such hospital connection that their charity cases will be cared for at cost. Their better class of patients will be cared for in the best manner at very reasonable rates. Members who join the association will receive forty per cent. of all fees exclusive of hospital charges received from their patients. From the share of fees received from first patients sent to the hospital the amount of a member's stock subscription will be taken. He then, without direct expense, becomes a stockholder in what the founders say is to be the best paying hospital in the Mississippi Valley. Such a

circular will attract the attention and interest of the most undesirable element in our profession. Doctors who have not been enabled to obtain a remunerative position through professional capacity will now hurry to make forty per cent. of profit from all the patients whom they can send to so-called competent men at this hospital. Physicians subscribing to this stock become ordinary hounds engaged in hunting. They can inform patients about the professional capacity of the men who are connected with this hospital more successfully than they can tell about their own capabilities. Every member of the hospital association becomes a runner for the institution, engaging in work with a greater degree of interest than if he were on a salary. If the barker persuades a sufferer that he should pay a very large fee, the barker's proportion makes him feel good no matter how the patient feels about it. In practically every sort of business the payment of percentage commissions instead of salary is stimulating to the highest degree of individuality on the part of agents. I happen to know that some of the staff members of this particular hospital association are really very skilful, and in that degree the more dangerous. Moral weakness is a menace of dimensions proportionate to the weight of a body which it subtends.

If a patient were to be sent to this hospital for operation, with a diagnosis of appendicitis, or gall-stones, or ulcer of the stomach, but with symptoms really dependent upon arteriosclerosis, I would not like to be that patient. Would you? He is entrusted to business mercies. Forty per cent. commission goes to a hound who has followed the trail of a sufferer and, having holed him, sits by with wistful eye and dripping jowl awaiting a share of the blood when the experts have finished with exercising judgment.

Some people will say, "Oh, well, we know that the southwestern part of that state was the last stronghold for train

robbers and horse thieves, but we do not believe that any doctors belong in that class." Wait a minute. Not many years ago the legislature of that state (not worse than many others) said, "Give everybody a chance. We will charter diploma mills and let anybody practise medicine if he wishes to do so." The result was that the state hatched out a brood of many thousand licensed incompetents, who now have families to support. They cannot hold practice very well because the element of finely equipped doctors in that same state has finally gained control. The men with increasing families and decreasing incomes are still in the prime of life and they have gilt-edged licenses allowing them to practise. They were seldom taught principles of ethics to begin with, and principles of ethics would now stand in the way of their gaining a livelihood for a hungry family. *Ergo,* making a living by sending patients to really skilled practitioners comes in handy for several thousand incompetent doctors in one state alone, we observe.

Although reserving belief in the correctness of the report, I have been informed, perhaps wrongly, that in a large hospital in a certain city one member of the visiting staff gives the house doctor a percentage on all of the fees collected from private patients. (Bait!) This at first thought would represent a generous attitude on his part, because good young men are perennially penniless. One direct effect of this procedure upon a young man would lead him to influence patients toward the donor. On that ground it would be a bait procedure on the part of a chief, and demoralizing for young men who are just getting their lessons in medical morals from men whom they naturally idealize. Were it a matter of simple and disingenuous interest in young men, the chief would call together upon this question all of his colleagues on the visiting staff. After a conference they would all agree to give or not to give

a commission to members of the house staff. The giving of such a commission secretly would indicate the insincere nature of the transaction. The selfish motive would cause unrest not only on the part of the staff of that particular hospital but also on the part of other hospitals.

Incidentally the question of remuneration for members of a house staff is one of considerable interest. The young men on the staff are supposed to give their time in order to learn. It is such a valuable position for apprenticeship that the struggle for position on the house staff of large hospitals has resulted in the establishing of a very high order of entrance examinations, and there are more than enough young men who are eager to work for the experience alone. If remuneration is to be added for the purpose of securing special attention from the house staff for patients in private rooms, patients in the wards would be apt to suffer from a certain degree of neglect, because there is much human nature still to be found among young men. If at any hospital, for any reason, it should be decided that the best interest of patients is served by paying members of the house staff for special attention to patients in private rooms, it would have to be according to agreement of the entire visiting staff. Definite amounts of payment would be agreed upon; otherwise the giving of commissions to young men on the house staff by any one of the visiting staff would be of bait character and based upon insincerity in relation to their real interests. The whole principle would be wrong. It would fix the attention of susceptible young men upon the financial feature of cases, and patients would be reckoned in terms of dollars rather than in terms of pity. Personally I would like to have the state or municipality give a salary to every member of the house staff, but if this were to be arranged in such a way as to purchase special privileges for private room patients, it would foster inhuman-

ity. Young men would start out in practice with flaws in their running gear.

Dr. Tanne at a certain medical meeting recently asked how a doctor engaged in lodge practice with an average fee of about five cents per visit could be expected to make a living. He explained that the only way is to call prominent doctors in consultation and split the fee with them, and that he had done it himself. He thinks we should have no nonsense about matters of this sort and says of the Golden Rule—"It is childish. We have gone beyond that. We must seek deeper for causes of bad conditions on the East side." He is evidently a socialist. As a matter of fact, he described immediate, direct, and natural results of lack of regard for the Golden Rule. The "deeper down" cry I am getting to believe is a mystic obsession.

In the course of progress there has recently been founded the American College of Surgeons, with 450 representative men as charter members. The intention is to give some sort of basis for judgment in relation to the capability of surgeons, This exerts a corrective influence upon the destructive features which accompanied the movement toward establishment of numerous small hospitals. Half of the members of a staff sometimes felt they must do surgical work in order to maintain that prestige which is popularly but mistakenly supposed to inhere in surgery. The Fellows of the American College of Surgeons are to use the title F. A. C. S., and this will be an honorable title, provided that the president and censors are chosen with the deep feeling of responsibility which has accompanied the first movement and election of officers. A Fellow of the American College of Surgeons is supposed to be a man who has been recognized by his peers as a man competent to engage in surgical work. If men of very highest dignity of character are elected to position on the board of

censors as officials, the influence of this new College will be far-reaching in beneficial effect. Tremendous impact of pressure will be brought to bear against it by the thousands who feel themselves competent to engage in surgical work but who are not recognized in the profession as being quite well enough prepared. The underlying motive in formation of this College was altruistic, and for the purpose of protecting the public. The prime movers were entirely above the need for using any such means for enhancing their personal interests. The corrective influence will not only tend to the exclusion of unqualified men from fellowship in the College, but it carries a sword of Damocles which may fall at any time upon a Fellow who takes part in such unprofessional methods as fee-splitting. Here is where professional jealousy can be used to great and practical advantage, because any doctor or layman will be enabled to secure expulsion of a Fellow, provided that he has the data in relation to a single instance of secret fee-splitting. If an applicant for membership has failed to obtain fellowship in this College, the facts though known would influence a comparatively small clientele, but if a surgeon once having possessed the title of fellowship in the College were to be dispossessed of that title for cause, the seriousness of the resulting injury would serve as a warning to men who are naturally deficient in professional spirit, although good technical operators, so far as technical work is concerned.

When first writing and talking upon the subject of fee-splitting in our profession I aroused the enmity of two separate groups of physicians. First, the fee-splitters themselves, and next, the honorable men who did not believe that any such practice existed and who resented the imputation. These two groups included the entire profession. Anyone who believes that it may be profitable to arouse the enmity of his entire

profession must have a bit of experience in order to realize just what it means. All professions are in danger of drowning themselves while man is in the semi-domesticated state of development.

Crafting will be lessened to-morrow not only upon the ground of honor, but also upon the ground of fear. Now that the subject has been agitated, doctors are looking about in a wide-awake manner and asking, "Which ones among us are the crafters?" Whenever any one specialist is found to belong in this class, the names of general practitioners who are associated with him and known to be his friends are smirched, and they are made to feel it. One of the best features of the American College of Surgeons was the sending about of this circular to all applicants: (August, 1913.)

AMERICAN COLLEGE OF SURGEONS

At the meeting in Washington when the American College of Surgeons was founded, the question was asked whether the College should positively exclude surgeons who were suspected of fee-splitting or paying commissions in any form whatsoever. The President declared that no one should be admitted who was suspected of being guilty of this pernicious practice. This declaration was received with universal and most enthusiastic applause.

It does not seem possible that many men who would otherwise be eligible can belong to the class of fee-splitters, but the fact that the matter was so much emphasized has induced the Committee on Credentials to prepare the following positive declaration, which will be filed in connection with the credentials of each Fellow.

If the College succeeds in eliminating this evil, the public will be enormously benefited.

Very respectfully,

COMMITTEE ON CREDENTIALS.

DECLARATION

I hereby promise upon my honor as a gentleman that I will not, so long as I am a Fellow of the American College of Surgeons, practice division of fees in any form; neither will I collect fees from others referring patients to me; nor will I permit them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate any one referring patients to me; nor will I utilize any man as an assistant, as a subterfuge for this purpose.

Signed.....

Date.....

The following quotation is from a statement of the Regents: "American surgery at its best is the best surgery of to-day, but the average surgery in this country is not only below this standard, but below even a reasonable standard. The intent of the college is to establish this standard, to begin with by recognizing those men now in practice whose training, experience, and character entitle them to be considered specialists in surgery or in the strictly surgical specialties."

If the best American surgery is the best of all surgery, but the most of it below a reasonable average in character, we may assume that the foundation of a college for correcting the situation in surgery will be followed by the establishment of a similar college by the internists for raising their own standards of efficiency.

The ophthalmologists were perhaps the first specialists. They have demonstrated in many ways the dangers of specialism, which separates men from the spirit of the central profession. Among them were found the first crafters, accepting commissions from manufacturers of glasses.

They gave a man like Upton Sinclair opportunity to go before a legislative committee with his pocket full of receipts for commission money received by ophthalmologists and secretaries of clinics from opticians. He was interested in supporting medical fad bills including the optometry bill, and opposed to the interests of the regular profession, and of the public which it represented. Honorable physicians explained to the committee the altruistic motives which took them to Albany. Sinclair, however, was fortified with documents to uphold his contention that doctors were in business for the money to be gotten out of the business. He showed me a whole fistful of receipts for graft money and asked me to see the kind of names that were attached to the receipts. This I did not care to do because when fighting for a principle I have preferred not to allow any personal element to enter, and have not obtained actual knowledge regarding a single individual who was engaged in undignified, unprofessional procedures. Sinclair deeply impressed legislators with his documents, which were made available for his purpose by members of the medical profession who vainly imagined themselves to be representative men.

Not all ophthalmologists accepted commissions. The ones who were instinctively superior to that fault were commonly those who had been engaged in general medical practice at some time in their lives and had caught the true professional spirit. Specialists who have not enjoyed general practice first, lose much beside professional spirit. Centuries before Christ a Hindoo physician, Sasruta, said, "He who knows but one branch of his art is like a bird with one wing."

Little things which are perfectly well known to one part of the profession may not be known at all to another part. For instance, the ophthalmologists in general do not realize that

plain water is corrosive because of its action in taking water out of the body cells by osmosis. Ringer's solution or even plain saline solution as a basis for eye-medicaments would avoid this corrosive effect. Surgeons know this principle very well, but the specialist in the eye has not as yet appreciated it.

One reason why we do not make progress still more rapidly than we do is because there are not enough general practitioners to combine the knowledge of the experts. The cyclothemic patient in the period of depression who goes to various specialists,—ophthalmologists, laryngologists, gynecologists and surgeons, makes wonderful recovery when the depressive part of the cycle is completed, but these specialists do not generally recognize the cyclothemic patient, and mental features of the euphoric stage are set down to the credit of special skill. The alienist, on the other hand, knows that the work of other specialists was unnecessary for the most part, and that the cyclothemic would have made first rate recovery on completion of the depressive stage of the cycle anyway. He is prone to stand in the way of surgical work which would actually remove a real precipitating cause for depression. The result is mutual recrimination between alienist and other specialists.

At the present moment of rapid transition changes there is lack of proper coordination in work between different elements in our profession. The surgeon finds many peritoneal adhesions which are secondary to toxic influences. The gastro-enterologist observes the toxic influence but does not give attention to the secondary feature of adhesions, which introduce their own set of complications. Surgeon and gastro-enterologist do not work in conjunction skilfully and intelligently so far as massing knowledge belonging to their respective fields is concerned,—nor do they habitually as yet step to outside consultants freely in order to obtain data.

The extension work of specialists into the fields of one another is bound to continue until we complete a circuit to-morrow and arrive again at the general practitioner. When the gynecologist amputates a breast, that sort of case does not rightly belong to him: It belongs to the ophthalmologist, because the patient shed tears over her trouble.

Specialists without general training are prone to go very far wrong. Instances come to mind of men whom I knew in college days who passed excellent examinations and secured positions in which they went directly into special work. Some of them took up gynecology without any previous general preparation. These are the ones who would remove neuralgic ovaries when the fundamental cause for the neuralgia lay in splanchnic neurasthenia, with a precipitating cause as far away perhaps as in nasal hypertrophies or an encapsulated wisdom tooth. Gynecologists and general surgeons as well have taken out hundreds of ovaries, when the fundamental or precipitating disturbance was due to the presence of physical brain cells in the condition which they present during depressive stages of psychasthenia. These men, to my certain knowledge, were not qualified to work out the question of ileal anerobes before beginning to meddle with a flexion of the uterus, which is practically always symptomatic. Most of the work which is done on flexions is pernicious anyway. It is prescribing a handkerchief to muffle a sneeze without looking for the cause for the sneeze. It is very difficult to get such an idea introduced among the habit thoughts of any one who took up the specialty of gynecology before obtaining general experience.

The gynecologist extends his work until he reaches to the upper part of the abdomen and then goes with a jump to the mammary gland. General medicine and general surgery should first take charge of gynecology because the principles which form a basis for this special work need to be acquired in

advance of special technical training. If one begins his special work with gynecology he is not likely to do as good surgery as if he began elsewhere first, working toward gynecology gradually in accordance with proficiency that is incidentally acquired. After general principles have been well mastered we then have the gynecologist who really excels in the field for which he finds himself naturally adapted.

Neurologists have developed their scientific field to very high levels, but are not less careless than other specialists when going over fundamental causes for symptoms. I have this week seen a patient suffering from spinal irritation and coccydynia in a case in which a famous neurologist had determined after careful study that her symptoms were due to a mental and moral shock received in the course of divorce proceedings. The coccyx was loose and precipitating all of the physical irritation. I have known mental and moral shock to produce really grave effects, but never to the extent of breaking off the end of the spine.

As a class the neurologists and psychiatrists group neurasthenic patients together, and look with disfavor upon surgical operative work. They are disinclined to look for precipitating factors, although surgeons know that some one surgical condition may be chief malefactor in an individual of this sensitized group of patients. Surgeons have too often made a mistake, on the other hand, of believing that many neurasthenics could be made better as the result of surgical intervention. Both of these mental attitudes belong to a transition stage in our medical history. To-morrow a higher degree of skill in diagnosis will allow neurologist and surgeon to place a vast army of neurasthenics among the efficient group of men and women, and allow them to adjust themselves quite well to their daily surroundings. Surgeons will not operate until good consultation has been held with competent diagnosticians;

and the neurologist and alienist, on the other hand, will not allow these cases to go by default, with failure to receive such benefit as may be readily given by surgery of the proper sort. During the year I see many patients with sagging colons, loose kidneys, peritoneal adhesions, or eye-strain, who have been in the hands of our best authorities and yet have not once been examined with reference to these possible precipitating causes for their neurasthenia. Not a word has been said to them about it. Many of these patients have been placed in such good condition through the application of surgical measures that they consider themselves to be quite well. In former years I injured some patients of this class by ill-advised surgery. *Experientia docet!*

There is always danger of the general practitioner becoming a sort of specialist without his realizing it. In all of our large hospitals purely surgical cases are kept upon the medical side without receiving proper attention quite as frequently as purely medical cases are subjected to operation unnecessarily. So long as this condition lasts we are in an undeveloped state medically, and we can emerge from our bud only when the competent general diagnostician engaged in working with a large salary and with a small degree of prejudice takes charge of the general supervision of all patients in the hospital. At the present time it is the custom at most hospitals for an official in the admitting office to send special cases directly to special departments. Under these circumstances a patient with distention of the hemorrhoidal veins due to cirrhosis of the liver is quite likely to have the wrong thing done. A patient with sciatica due to the presence of an enlarged prostate is almost certain to have the wrong thing done. A patient with rheumatism dependent upon latent tooth root infection is almost certain to have the wrong thing done. A patient with beginning cyclical mania complaining of pelvic neuralgia is almost certain

to have the wrong thing done. Hardly any patient is admitted to any one department of any hospital without receiving treatment that is different at least from the treatment that would be given that same patient in another department of the same hospital. When shall we begin to correct this sort of thing systematically. To-day or to-morrow? It will be done, because we are bound to make progress.

When I first began practice, specialists in diseases of the ear occasionally used "the gimlet" for opening mastoids but they more often performed the Wilde incision, timidly and with much ceremony. They described in detail the necessity for avoiding arteries while making this incision, expressing a most childish fear from the surgical point of view. According to the principles of general surgery, the mastoid process needed to be chiseled completely away and still more extensive work done at times. General surgeons were doing that at the time, and I much regret not to have kept records of my own cases. Thorough work seemed like such a natural thing to do that my cases of this sort were not even reported. General surgeons were removing the mastoid process while the specialists were not doing it, with the exception of Dr. Gruening in New York, so far as I know. The instance is quoted as showing that men in special fields may leave out great and necessary principles belonging to work of the central profession. At the present time otologists have taken mastoid work almost entirely out of the hands of general surgeons, and very properly, for they have developed a vast degree of special knowledge.

The study of specialties in medicine fills the profession with men who are bristling with readiness to render service but who are not filled with feelings of humanity. It is the human touch after all that counts for most in our relation to our patients. Men who have just completed their terms of service

on the hospital staff have thoughts of quick efficiency in mind. They enter the room of an invalid with a sort of machine-made air, without that attitude of sympathy which is the most important feature in obtaining control of a case.

The specialist is like a genius in one respect; he concentrates attention upon a subject and eagerly brings out its values, without keeping track of other values for purposes of good balance. Consequently, when conferring with a great specialist, we have to be about equally great in order to remain upon safe ground.

At the present time there are specialties within specialties. The specialists among specialists have frequently enough some cases they would like to try over again just once more. That is one reason why a surgeon who is considered by the lay public to be good enough may not be quite good enough. It is only in the profession that expert men are properly known to each other; consequently it is very unsafe for a patient to place himself under the care of any specialist excepting through the advice of the family physician. This in its turn places a heavy responsibility upon the family physician.

The knowledge required for knowing to whom a patient is to be taken for purposes of consultation is so great that it makes one very thoughtful. One must know specialists personally in order to protect his patient's interests. We must know their individual peculiarities. The knowledge which is required on the part of the physician when selecting specialists for his patient is of a higher order than the knowledge required for obtaining his diploma when graduating in medicine.

It is very difficult at times to know to what specialist a patient should be sent. I remember the case of one young woman who was deformed by small abscesses constantly appearing upon the face and who suffered much from digestive disturbances. She had a list of thirty physicians whom she

had seen at various times, and not one had helped her for any length of time. I sent her first to a gastro-enterologist in whom I had confidence, but she returned in the course of two months without having been benefited. She was then sent to a neurologist, who failed to help her. Then to a skin specialist, who applied several up-to-date methods of treatment which he was sure would be of value, but which did not prove valuable. I finally sent her to an ophthalmologist, Dr. J. H. W., to have him rule out the possible factor of eye-strain as a precipitating cause for the digestive disturbances, and the trophic disturbances of the skin. He proved to be the right man, and she was promptly and completely cured after unavailing search for fifteen years. There are many cases of this "reflex" class which go the rounds of the profession without having the cause for their disturbances discovered, and it requires a good deal of knowledge of specialists in order to know which one is likely to be useful in any given case. Somewhere there is somebody who knows just what to do for a peculiar case.

The best medical diagnostician is by no means the best physician to care for patients in detail. Different types of mind are required for the two functions. The scientific psychologist is by no means the one to control the patient's mind in time of illness, in fact, he would be especially unfitted for that work. It is the intuitive sense belonging to the good family physician that correlates his patient's needs—something above laboratories. The family doctor's work is something akin to the spiritual work of the pastor without reference to the pastor's theological tenets, his troubles with the choir, or his masterly struggle to love all of his deacons like brothers.

We have experts enough in every profession. The next thing in order is to educate the people to make use of the experts which they already have.

One does not realize the extent to which lines of cleavage have developed in the profession until he has occasion to find an all-around man for some particular position. Some time ago I was commissioned to find a young man who could fill a certain place in the government service at a salary of twenty-eight hundred dollars per year and all expenses paid. According to the requirements, it was necessary for him to be an expert bacteriologist and at the same time a gentleman who could entertain visitors politely. I expended considerable time in trying to find the right combination, and finally had to transfer the responsibility to some one else. There were a great many bacteriologists, men who belonged to the student class and who were splendidly equipped for their work, but they had been too closely engaged in scientific details for developing that free and beautiful side of social life which belongs to the good entertainer, the cosmopolitan catalytic sympathizer. On the other hand, there were many gentlemen who had found social life so agreeable that not much attention had been given to the question of transmutation peculiarities among the streptococci, or to a determination of which ones of the lecithins among the phosphorized lipoids furnished protection against toxin of the typhoid bacillus.

There is a saying that it takes nine specialists to make a good doctor. This is fairly true. It does not mean that the good doctor when found is actually to attempt to do the kind of work done by nine specialists. Therein lies the fallacy. The good doctor does not try to do everything, but he uses the specialist as a therapeutic resource and finds men who can do in five minutes and well something that he could not do well in a year, if at all.

A young physician who had rapidly gained an excellent position in the profession, told me that it was due to his calling consultants very often. He knew that long before people

would have confidence in him, they would have confidence in his selecting the sort of men whom he knew about. People quickly associated him with the idea of getting the right thing done somehow.

The size of a man in the profession may be judged by the number of consultants he needs. A small man seldom perceives need for them, but a large man takes note of such vistas of need for assistance that he makes use of extensive available resources for knowledge.

Thousands of people die every year because of lack of proper consultation over their cases. A physician in a small town told me it was all very well to require experience and education of him, but the public would not allow him to do good work. They wanted the cheapest. "Who is teaching the public?" I asked him. "What does your title of doctor mean? They look to you as the only one in authority. Teach the people how to catch instead of allowing them to fumble you, while ignorance makes a home run."

When any one specialty in our profession threatens to grow out of proportion, nature applies some resource for preserving symmetry. One limb of an oak must not be allowed to outstrip the other limbs. When new sources of light upon a special branch of medicine serve to excite abnormal activity, nature sends a restricting blight of some sort. In the ophthalmologist's office the blight consists of "the next case." Time is not given to exhaustive study of one case because so many others are waiting and the doctor must spread his knowledge thinly over them. The pest which restrains ophthalmology is "the next case." In neurology and psychiatry the restraining pest is metaphysics. Psychiatrists and neurologists represent a highly educated class in the profession and qualified to confine themselves to scientific methods. This department of medicine might outstrip other departments, consequently

nature disposes of the leading scholars by tempting them into the fools' paradise of speculative philosophy. The scholar soon comes down with an attack of metaphysics and is lost to progress. In dermatology the pest consists of arrest of vision by primary retinal images. When a window screen is emblazed with a pretty design, one cannot look into the room beyond because of arrest of vision by the figure upon the screen. The dermatologist fixes his attention upon the design of an eczema and cannot readily see the protein poison at work upon the ductless glands within the patient. In surgery the pest consists of unpreparedness. A graduate in medicine is licensed to engage in the practice of medicine and surgery. If a man has a license to practice surgery, that surely is *prima facie* evidence that when called upon to do expert work he stands ready to furnish something "just as good." The pest of the gynecologist is a rocky bottom under his work; he is prone to strike and run aground upon every pelvic symptom. He strikes upon a pelvic ache without knowing that it may be similar to a headache, and due to the same fundamental cause. He may seek in the pelvis the cause for a dysmenorrhea which is associated with a hyperesthetic area upon the inferior turbinated bone, and curable by desensitization of this hyperesthetic area in the nose. It is the exceptional young gynecologist at least who can get past a flexion of the uterus and look for its general cause in a neurasthenia, and a precipitating cause in something as far away as eye-muscle imbalance. Not one gynecologist in ten can even pronounce the name of his specialty correctly. He hangs fast on what the letters seem to indicate, and is so accustomed to stopping short on everything in his path, that he does not even take the trouble to look up the correct pronunciation of the name of his specialty. I am reminded of an Irish lumberman on the Little Sioux River in northern Minnesota. It is a rapid shallow stream,

with many rocks above the surface. My guide had shown him a fine stand of pine and asked if he did not want to purchase it and give him a commission. The lumberman looked first at the pine and then at the stream, and then remarked: "Faith I'll not be runnin' logs through a sthream where the bottom is higher than the top." Gynecology does no fast sailing until it gets away from itself, and then sails into the more dangerous waters of deep general medicine and surgery. My comment does not refer to the competent gynecologist who reads this note, but to others whom he knows about. The reason why I am able to speak authoritatively on the subject of gynecologists is because at one time I devoted a great deal of special attention to the subject and made all of the conventional mistakes myself. Every branch of medicine has its special inhibitors of development which are sent by nature for the purpose of maintaining a balance among branches of the professional tree as a whole.

In "The Post-Graduate" Medical Journal for August 18, 1908, Dr. E. M. Alger says: "I recently tabulated thirty unselected cases in which I had the prescriptions of previous oculists, and then estimated the total error present under atropine. Of the thirty, two of the previous prescriptions were absolutely correct, while in ten others the variation, though often great, might be accounted for by variation in the individual judgment, as to the proportion of the total which should be prescribed. No amount of charity could account for the other eighteen. This is just about what one might expect from the fact that the teaching of refraction is everywhere neglected, and most men are necessarily self taught. It also explains the failure to benefit many cases of obscure functional disease, and the very wide discrepancy of opinion as to the value of the ophthalmologist as a consultant in functional conditions."

My first experience with the subject of eye-strain was when I happened to be associated periodically with a physician who made a specialty of the study of the eye. I observed that the profession on the whole was not at all familiar with the subject, and that an enormous amount of disturbance resulted from neglected eye-strain. For a long while I made a feature of calling the attention of the profession to the subject, at the risk of being called a faddist with panacea tendencies. I had seen dyspeptics cured of most of their troubles, drunkards losing their craving for a spree, epileptiform (not epileptic) seizures disappearing, toxic disturbances lessened, and a long train of morbid conditions ameliorated by the relief from eye-strain. On the other hand when associated with men who were very familiar with the subject, I found they were apt to become special pleaders, and to overlook all kinds of other causes for symptoms which they tried to relieve through the regulation of eye-strain. That is a natural tendency among men who take up special studies in any subject. The specialist is impatient with everybody excepting himself.

It is this sort of thing which allows quacks to step into the field. My final conclusion on the subject of eye-strain is that it constitutes a precipitating factor rather than a causative factor for many neurasthenic symptoms, and I would put emphasis upon that description. As a precipitating factor for disturbance it occurs chiefly with a susceptible group of patients, the asthenics, and leads to a long chain of other disturbances which may be held partly or even wholly in check when this leak is stopped. The important thing is to keep the proportion of values well balanced in our work.

One of my relatives, who was engaged in mining and engineering work which took him into the mountains, was very well and strong when there. He was of the mental temperament, and for that reason would come to New York

occasionally for rest, taking a suite of rooms at some hotel, and devoting himself to reading. After a few days of reading he would develop sciatica so severely that it prevented him from following reading further, notwithstanding the application of various sorts of treatment. When he came to me for advice one day I connected the history of neuralgia with the idea of eye-strain, because the sciatica always came on while he was devoting himself to reading, and not at other times. The authority to whom I sent him found that he did have eye-strain, which was duly corrected, and the sciatica disappeared—also a car-sickness from which he had suffered when travelling. It was my belief that sciatica in his case was a reflex from eye-strain, and I was very much pleased at finding a means for giving him relief. He was so gratified over the result of treatment that he proposed giving a building to one of the hospitals with which I was connected. My later and more recent knowledge includes the idea that his sciatica was not a reflex from eye-strain at all. More likely the eye-strain produced derangement of digestive function at a time when he was eating a good deal and not exercising. His sciatic nerve sheath perhaps made a selective collection of toxins which caused irritation, local exudation, and nerve sheath pressure,—in fact the whole train of phenomena belonging to sciatica of the toxic origin group.

I have a Persian friend in the profession, Dr. Y., who has occasion to go back and forth every year between the West and East, from New York through Germany, through Southern Russia to northern Persia and Afghanistan. He says that he observes nervous invalidism to be most commonly found in America, less commonly in Germany, far less in Russia than in Germany, considerably less in Persia than in Russia, and less in Afghanistan than in Persia—in the two latter countries neurasthenia being hardly known. This relates in

part to the fact that the three most eastern countries are ones in which the people live more of an out-of-door life. No doubt there is something in the influence of climate pure and simple. He says that soon after his arrival in America he usually becomes nervous, and observes a disagreeable response to sights and sounds. While in this country he wears glasses for astigmatism, but he never wears them when in Persia or in Afghanistan. Another fact of importance is probably the one relating to food. In the two eastern countries great quantities of fermented milk are used, of that sort which contains microbes inimical to the indol producing bacteria.

My friend who has astigmatism and who finds that he does not need glasses at all when in northern Persia and in Afghanistan, but requires them when in Germany and in America, allows us to give some credence to the point made by Christian Scientists who claim that glasses are mostly unnecessary. Freedom from nervous tension certainly has its effect in at least a part of the field of ophthalmology and we must not scout the Christian Science view as a whole in this matter. Peace of mind lessens nervous tension.

When considering the symptom of headache with reference to the eyes, we have three rather notable classifications: 1. Headaches which are caused by a pathologic change in organs other than the organs of sight. 2. Headaches caused by pathologic changes in the organs of sight themselves. 3. Headaches caused by physiological conditions of the organs of sight, and these physiologic conditions having a tendency to exhaust the patient's strength, furnishing a fact which must always be determined either for negative or positive testimony in practically every case of neurasthenia.

Dentistry cannot be separated from the general study of medicine, excepting in an arbitrary way, and the most highly educated dentists realize this point and favor the idea of

students taking a medical degree in advance of their engaging in the study of dentistry. This would be very desirable. Dentistry is a branch of oral surgery. Oral surgery is a branch of general surgery. General surgery is a branch of medicine. Medicine is a branch of humanity. Humanity is a branch of sociology. Dentistry proper is then in reality a very small branch of medicine and is generally recognized to be just that, although a high degree of technical skill is developed by dentists. The dentist in our present system of education has not always developed that spirit which goes with the Hippocratic oath. He has cultivated more of science than he has of tender human feeling, and some dentists are prone to turn the idea of compassion to advertising account, by pretending to do painless work. This is not true of the dignified responsible dentist whose talents make him superior to any sort of advertising, and who incidentally does painless work to the extent of his ability.

Medical experts in cases in court should be appointed by the court, and the court should also arrange about their compensation. Most of the complaint about medical experts is due to the fault of lawyers in not being competent to manage these experts. If judges upon the same bench cannot always agree upon what is good law, they must not insist upon physicians giving "yes and no" answers in matters of medicine. Let us suppose that a lawyer, who has insisted upon "yes and no" answers from a doctor happens to be himself a witness. This is the procedure.

Question: Does your wife love you?

Answer: Well, she says she does.

Q. That will not do,—yes or no, please.

A. So far as I know she does.

Q. You must answer that question yes or no.

A. Well, I think she does.

Judge, severely: "This is not a competent witness. He is discharged and we must obtain our information from other sources."

One reason why experts should not be selected by "sides" is because there is naturally the human tendency for every man to wish to see his side win, no matter how honest he may be in his testimony. A little justifiable leaning may cause truth to change its centre of gravity.

We passed fairly well out of the stage of superstition in medicine in the nineteenth century. We are now in the midst of the analytic era and moving toward the synthetic stage. Men of the generalizing type of mind are beginning to co-ordinate facts in such a way as to bring out great fundamental truths; and the parallel rays of facts are being condensed through lenses of the diagnostician. Science lost much during the analytic era of our progress and when the specialist believed that the end of a case lay within his field. If the sun threw off the planets from its brilliant mass it lost just so much of its substance. When medicine began to throw off specialists it lost much of its character. The specialists became well rounded in their littleness and remained more or less subject to the influence of attraction by the great central profession; but the finer humanity which has always marked the medical profession lost caste through its division into specialties. Capacity for sympathy and for tenderness is apt to be lost by specialists in medicine. The first question of craft in the profession came up in connection with one of the first planets to be thrown off, that of the eye and ear; and the commercial feature of accepting commissions from dealers in spectacles marked a certain loss of character, going with a separation from the spirit of the great whole profession. The old time physician was close to the pastor of the church in his sympathy, his kindness, good counsel and good cheer.

He had been sacrificed upon the altar of science. Men who had made special study of special subjects ran away with his patients. One reason why the good old general practitioner threatened to leave us was because the towns are all full of human nature. People took advantage of his kindness as they did of the clergyman's kindness, and deprived him of means for travel and study and for getting up-to-date. Civilization halted its own progress by its treatment of the general practitioner, very much as it shackled spiritual progress by limiting the income of the clergyman. If the clergyman were given many times his present salary, sent to travel for rest, and to study principles of ethics,—given time for scholarship,—the people could well afford it, but they do not know that. If the people pay the general practitioner enough to allow him to travel and study and take advantage of all of the methods of the day, they could afford to do so, but they do not know it. We are to return to the general practitioner who will exercise a higher degree of kindness than has been exercised before, because it will be on a larger scale of information. The general practitioner of to-morrow is to apply the synthetic process to facts which specialists have evolved during the analytical era. He is to be a greater man than the specialist, who is to retire to the position of therapeutic resource. In order to take a commanding position, the general practitioner is to acquire a high degree of medical knowledge. The long course of medical education at the present time is in line with all progress in culture in the world. Men are fitting themselves to be more useful to the race than were the older practitioners. Their methods are to be more severely dignified, more kind in a general way through utility which is upon a scientific basis. Even with the longer course of study for physicians and the higher degree of education required, the death-rate will not be markedly diminished, for

the reason that the microbe is taking the same sort of course in education, and is adapting itself to take its prey under the changing conditions of civilization. If we were to drop back to the medical methods of one hundred years ago, the death-rate would now be appalling. Like the orchardist with his apple trees and their increasing number of insect pests, the doctor requires greater skill because of the increasing number of microbe pests, and an increasing degree of vulnerability of the cultured protoplasm of patients of the present day.

Investment is a science. The selection of a physician is equally a science. When the patient seeks a consultant there is always a question if he will obtain the best opinion which might be obtained in his case. The patient who comes to my office may obtain from me a wrong opinion altogether, but what is more likely, I may overlook something of a great deal of importance which another consultant would have observed. The patient when paying a consultant's fee is taking out insurance against error in diagnosis, and if there were no speculative feature to insurance in general, insurance companies would seldom fail in business. The business man chooses an incompetent physician about as frequently as the doctor invests in impractical or fake schemes. Both instances present evidence that nature does not wish us to progress too fast.

The difficulty which a layman may find in the selection of a consultant was painfully evident in a case which came into the office one day this week. A father called with his beautiful young daughter who had enlargement of the lymph glands of the neck. The von Pirquet test gave a positive reaction for tuberculosis. I did not know that another surgeon had been consulted previously and had agreed with the family physician that an extensive operation was the only resource which would cure the disease, and avert the danger of extension of the tuberculous process to other structures. I gave the father an

opinion that operation might safely be avoided in this particular case by one of three resources: the X-ray, the injection of iodoform and glycerine, or the establishment of a Bier hyperemia by the employment of alternate applications of the ice bag and the hot water bag. After giving this opinion the father was found to be in distress between opposing views of two surgeons in whom he had confidence, and both of whom were equally positive in their points of view. As a matter of fact it was a mistake on the part of the father to come to my office independently. He should have brought the family physician, and preferably, the other surgeon also. We would have compared notes, arriving at a decision without the presence of one who could only be disturbed by discussion upon technical points.

It is difficult indeed for a layman in the city to find the right physician if he has been so unfortunate as to have had good health until some emergency arises. If he depends upon the advice of acquaintances he is very likely to go wrong, for there is not a single pretender or charlatan engaged in medical work who has not persuaded a good many people to become enthusiastic in their praise of him. Signs in the window give no direction for a layman to follow, excepting that as a general proposition he may assume that the larger the sign so much smaller the doctor. Even the neighborhood in which a doctor lives may mean little. He may have money from some independent source which allows him to maintain a first class office in a locality where first class appointments are usually maintained only by men who have actually won high rank. Locality however certainly indicates taste, because a doctor instinctively chooses a location in which he would naturally be surrounded by people of his own type of mind. There is one fairly good way in which the layman may make a start, and that is by consulting the medical directory which is found

in every drug store. This gives an account of the connections and responsibilities of a physician in relation to societies and institutions, and also indicates his specialty; but the layman cannot very safely accept the advice of lay friends or judge concerning the special position held by a physician as outlined in the directory. His only safe way is to find a general practitioner of good standing and let this general practitioner choose for him the specialist, if one is required. After all, he must use his own judgment, adding the advantage of such skilled advice as he recognizes to be skilled, in accordance with his own experience with men and with things in general. Even with my own experience in the profession if I were a stranger in some city it might require considerable time and study on my part in order to make selection of the first physician to take charge of an illness of my own. The result of a considerable degree of experience would be required even then for helping my helper to guide both of us in the right direction for the most successful outcome in the case. There is no simple way for finding the right doctor. People will continue to find doctors according to the method which they employ for making investments.

CHAPTER IV

Let me say to the younger men in connection with deriving income from some outside source during the days when professional income is slow,—do not attempt it! There is immediately a diversion of interest. Even if one is living on practically nothing, he should devote all energies to preparation for the time when good cases will appear. That time is sure to come. In our profession as in the profession of arms, preparedness is the essential thing. In the course of natural events good cases come to doctors and dangers come to countries. Even after one has an established practice, there is often a tendency to look for outside sources of income, and physicians of my acquaintance have occasionally speculated in the stock market—which as a matter of course is ruinous, not only because of diversion of interest from professional thought, but because of the known results of stock gambling. During the first three or four years of practice my income was supplemented a little bit with the pen, and this is not included in the figures which are elsewhere quoted for income from practice. In conversation with one of our very famous business men he advised me not even to do this. His advice was "stick right close to the profession, even if you nearly starve to death, in order to be ready when you are wanted. Little touches on the wheel give it motion without our realizing it. Any interest outside of the profession is a push against the wheel, although

one may not observe that influence." My adviser was one of the half dozen wealthiest men in America and his advice was quite correct.

If a man is engaged in any sort of experimental work whatsoever he is almost certain to run across unexpected observations. At one time there came into mind an idea that if decomposable substances were to be submerged in an atmosphere of carbon dioxid they might be preserved. It was planned to replace the refrigerator with a tank containing carbon dioxid. This proved not to be practical for that particular purpose. Materials which were placed in the tank were not decomposed by ordinary bacteria, but a number of anerobic bacteria and fungi jumped at the opportunity, and attacked things in an atmosphere of carbon dioxid quite as destructively as in the air. This in turn led incidentally to an observation for which I could have obtained a patent, and might have made a fortune had I the time, capital and inclination, for following up that observation. Not only that, but it would be so interesting that the development of the idea would require every hour of my time and take it away from other things. The result incidentally would be public service. It is like almost everything else in that respect, and indicates the importance and difficulty of sticking to one line or becoming lost, like a man who is overboard letting go of one good line because he sees half a dozen others which may be grasped.

One cannot even take up legitimate enterprises, if they are of much moment, without danger of being turned from professional work. On several occasions it has seemed to me harmless and desirable to put forward inventions in the industrial field. When the sails of my schooner mildewed, I decided to prevent it and made a study of the mildew plants, which belong chiefly to two groups of fungi and mostly to the *cladosporia*. It was found that their food consisted of

the gums and gum-resins of vegetable fibres. The next step in order was to remove their food from fabrics, and this was accomplished by saponifying the gums and resins with alkalies at high temperature and under pressure. Incidentally it was noted that this process changed the canvas into a beautiful soft white fabric which showed almost no loss in textile strength, and which became soft and almost silky. The prepared fabric possessed the additional advantage of drying very rapidly when wet. It seemed to me there must be an industrial future for this sort of product and a patent lawyer was asked to secure the proper papers. This cost me five hundred dollars. I then went to various manufacturers, supposing they would eagerly take up the new method of treatment of textile fabrics, but not one of them could be persuaded to interest himself in any way. The matter was gradually dropped. One night at the club a year or so later one of my old college friends, who was a member of a textile fabric trust, happened to be at the table at dinner when my experience was recounted. He said, "Oh, you don't understand how these things are done in business. We expect you to spend $100,000 in putting up a factory and getting the product on the market. Then, if it appears to be a success, we will either buy you out or shut you up." This lesson shows that if a doctor has an invention which promises much, his troubles have only just begun. The business if followed up properly might have brought many hundreds of thousands of dollars a year in the way of income, but would have taken me entirely out of the profession, plunging me into an occupation for which I had not been trained and for which I had no taste.

The comfort and companionship of my sweet old pipe were lessened by the collection of a disagreeable amount of fluid in the stem and bowl. None of the devices in the market intended for remedying this defect were satisfactory. I set out to

experiment for the purpose of studying the physics of the problem. It was soon discovered that all of the devices upon the market which are turned into the patent office in such quantities by inventors every year had been based upon the idea that this fluid comes from the mouth of the smoker. Experimental work showed that practically none of it comes from the mouth, but from condensation of the products of combustion of tobacco. The line of observation was then extended to include methods for keeping the vapor of burning tobacco at such a degree of tension that condensation would be limited or avoided. After giving odd moments of attention to the subject during some two years and trying out various devices, the principles which are involved were finally put into practical application and I then had a pipe which did not collect free fluid in the stem or bowl. It gave a sweeter smoke and a longer smoke. The endless annoyance of cleansing a pipe was done away with for it did not require cleansing oftener than once a year. Patents were obtained in all of the principal countries in which pipes are used. There was no objection made to the claim in the patent offices of any country, and patent rights were obtained upon a basic new principle never before applied so far as records went. In the German patent office the pipe was classed under the head of "new technical progress." Having obtained all of the patents, the next thing in order was placing the pipe on the market. Difficulties were encountered at once. Practically all of the pipe manufacturers are under the control of combinations in trade which take charge of the subject. These people did not care to have their own stock displaced and they did not propose to have my pipe in competition with patents of their own which represented large vested interest. One of the members of the pipe trust asked, "Why should we wish to send millions of dollars' worth of our own stock to the junk heap just for the

pleasure of paying you a royalty?" It was a difficult matter even to find a manufacturer who would make the pipe for a consideration. One manufacturer in New York whose own output of briar pipes is 2,800,000 annually, consented to make the pipe for me, but did not care to place it in competition with his own in the market. One does not realize the enormous volume of a special business, and the organization which is necessary for introducing an improvement in a stock article of trade, unless he knows traditions of the business. It was evident that I would have again the same question to deal with as one which came up in connection with the prevention of mildew in textile fabrics. It would be necessary to put perhaps fifty thousand dollars into the business and to devote my entire time to the subject in order to get it under way. No doubt a fortune could have been made from the pipe if one had nothing else to do, but it was at once evident that no matter how clean a patent one had, or how much an article was desired by the public, it could not be put upon the market excepting by some one with time and money at his disposal.

One cannot even dispose of such a stock article of trade as timber unless he understands the inner workings of the business. I wanted to cut out about five thousand large old chestnut trees on my country place. They were desirable for telegraph and telephone poles, for timber, boards, ties, and other purposes for which such wood is used. From eight letters addressed to dealers only one or two replies were received, these replies stating briefly that nothing was wanted. More than twenty letters were sent out to dealers subsequently. Most of these letters were not even answered, indicating that business correspondence does not come under the head of polite correspondence. The matter was finally put in the hands of forestry agents, who measured the timber and estimated its value as something above eleven thousand dollars,

and their efforts, together with my own, finally resulted in disposal of the timber, after nearly three years of effort, for a couple of thousand dollars, nine thousand dollars less than it was worth. This was in a locality so near to New York City that my woods are lighted at night by the reflection of light from the big city.

Unless one is engaged in business and devotes himself to the subject he cannot even dispose of land in a case in which he is to make no profit and others are to make large profit. This idea comes to mind in connection with the question of wood. Between my own property and that of my good friend Seton there were something over a thousand acres of rough wild land which had been passed by on all sides. It belonged in various parcels to the heirs of old families mostly departed. We knew that this land would rapidly become valuable in the natural course of increase of population,—unless one of our esteemed friends of national influence should stop talking about race suicide. Seton and I, with our fondness for natural history and for wild life, decided that it would be desirable to persuade some friend to purchase this intervening land between our respective estates, as it could be bought for a song, although lying considerably within twenty miles of New York City limits. I went over the ground with a couple of real estate agents, tracing the owners, minor heirs, etc., and found that the entire tract could be purchased on an average valuation of about thirty dollars per acre. This was in the year 1902. A circular was made out and printed and sent at my own expense to the members of a large club consisting of men who would be naturally interested in property of that type. There was not one response to this circular. Two years later the question again came up. The land had then increased to an average valuation of fifty dollars per acre. I got out a new lot of circulars, had photographs taken of attractive places,

and applied my best literary style to a description of the charm of the country and the delights of a forest retreat and game preserve within a stone's throw of New York. This was sent to members of the same club and to members of a large association of sportsmen and naturalists. Not one man responded, but two of the circulars which had been given by members to their friends resulted in my obtaining one good neighbor who bought a couple of hundred acres, and another who bought about one hundred acres of better land but not in this tract. Three years later the land had increased to an average valuation of about one hundred and twenty-five dollars per acre. Circulars were again sent out, and friends whom I persuaded to go out and look over the tract were delighted with it but would not buy because they learned that it had very recently been worth less. A couple of years later the land had reached an average valuation of about two hundred dollars per acre, but friends who were delighted with the idea of owning it would not buy because they learned that it had recently been purchasable for much less. At the present moment it has an average valuation of about two hundred and fifty dollars per acre. In a few years more it will have an average valuation of about five hundred dollars per acre, but men will not buy it because they will learn that it was recently for sale at two hundred and fifty dollars. By that time, however, it will be divided up into numerous smaller properties, and the opportunity for obtaining possession of a great forested tract near New York will have entirely disappeared. All of the efforts at finding a purchaser for this land were at my own expense, which was considerable, and with no string attached (as all of my friends knew) by which I could obtain any benefit beyond that of finding a good neighbor and one who would carry out the ideas of friend Seton and myself in having a large forested estate adjoining and protecting ours, and similar

in character. These instances are quoted merely for the purpose of showing young professional men that any attempt at engaging in work requiring commercial training is entirely out of their field. An engagement in a business enterprise of any sort immediately means a diversion of energy for the doctor, with a proportionate loss of interest in professional work. The ratio must always remain proportionate, because of our time limitations.

Doctors are not trained in business methods, but curiously enough they often imagine themselves to be well adapted for good judgment in such matters. This is precisely the attitude of many a business man toward medicine. His ignorance of medical matters leads him into all sorts of troubles and complications, just as the physician believing himself to be equipped for business gets into trouble. We are frequently in receipt of attractive circulars offering investment opportunity. Some of these give evidence of much literary skill and are a credit to the advertisement school. Among all the doctors whom I have known or heard of as responding to advertised opportunities for speculative investment, I do not at the present time remember a single instance in which the investor has not lost. The business man laughs at the simplicity of a doctor who goes into various advertised investment opportunities, and he then takes up the telephone and calle for an osteopath to come up to the house and set some bone which is a little out and disturbing his liver that morning, "and the whole street is a masquerade when Shakespeare passes by."

Investment in enterprises at a distance from home is frequently made by physicians, clergymen, teachers, and others who are too busy to personally visit and study conditions in the field of their investment. These enterprises may be chiefly classified in two ways: (1) Enterprises conducted by business men who are playing a sharp game, and (2) enterprises con-

ducted by honest men who really plan and hope to win. The only difference between these two classes of enterprise is that in the first case the money is lost quickly, and in the second case there is long drawn out anxiety, with introduction of complicated emotions before the money is finally lost. On that ground, investment with dishonest schemers is preferable for doctors on the whole, because the money is lost sooner. This tendency to invest at a distance is due to a peculiar human trait which is crystallized in the expression, "the distant hills are always green."

One reason why physicians, teachers, and people of moderate income generally are led into making bad investment is because rogues are often shrewd enough to allow them to pay on the instalment plan, while secure investments are not presented in that way. It is much the same way when responsible business men fall into the hands of charlatan doctors. Charlatans are shrewd enough to present their claims in a way which does not belong to the method of honorable physicians. Some of the most responsible doctors will always be in the hands of financial fakirs, and some of the most responsible business men will always be in the hands of medical fakirs.

The reason for the worldly success of a narrow-diameter charlatan who strongly promulgates one idea coming from a panacea mind, depends upon a public which possesses in large part the panacea mind also. One small shot will drop and fit into a series of a thousand small holes over which a large round idea would roll until it came to a mind of sufficient calibre to halt and hold it. The public is habitually looking for some simple remedy for its ills, and someone always proclaims loudly that he has that simple remedy—therefore he is accepted by a public which is assured that he has what it is looking for.

Another reason why people flock to medical charlatans of

various kinds is because they are seeking relief that is not given them by regular physicians. Is it the fault of the people that millions of hard earned dollars are annually expended for patent medicines? Not at all. People are seeking for relief that is not given by their physicians. It is not the fault of the people, but the fault of a profession which at the present time needs the unifying influences which are to come to-morrow. Charlatans are united in a way because they recognize the economic advantage of harmony as applied to their business.

Notwithstanding the wide separation of different fields of knowledge in medicine, our advancement has on the whole been so stimulating that it is fairly intoxicating, and it is a blessed privilege to live in the present day of our progress. The ideals of our profession are ideals of intellect and of character and always will be, but we have not as yet the business man's practical knowledge of the value of consolidation of interests. We need at least to form mergers of men whose combined knowledge may be applied to a given case. The highest attributes of humanity are called out by the sufferer needing our services, and this for all time will guard us against the dangers of commercialism which occasionally threaten to undermine our pillars and foundations. Doctors of undoubted skill often remain in almost needy circumstances rather than prostitute their ideals for money ends, and this is such a hopeful tribute to their ideals that we know the profession is safe against commercial enemies. Even the legitimate business side of the profession is often set aside by physicians in their objection to anything that savors of the commercial.

The sufferer needs our tender care. The father who is the keystone of the family, the mother who devotes herself to her children, and the little ones who are in need of our protection—these are the people who, when in distress, are to be cared for by the single-minded physician, who abjures all selfish thought

of profiting from their troubles. He may take the dignified position of asking for compensation which causes little deprivation. No objection can be made to this. The physician who is to do the best work must have an expensive education, and his own needs for the purpose of widening his knowledge are very great. He can employ many thousands of dollars a year out of his own pocket for expenditures upon various experts in research work. The physician who means to get right on various subjects is subjected to various kinds of expense which cannot be anticipated, because our views are constantly changing. There was a time when it was really necessary for American physicians to travel much in Europe, for the purpose of seeing masters or working with masters in the older countries. For a time France led the whole world; then Germany stepped to the fore and we all had to go to Germany. At the present time progress has been so great in America that one must travel about in his own country, which has become the newest centre of activity. The present century is to see in this country the uniting of disjointed forces that will place us in the lead, and intensive specialization must become the order of the day for a part of our army of workers. Yet that will belong only to men of the specializing trend of mind.

An enormous amount of force is wasted in doing work that has already been done. Men who are flushed with expectancy because they are on the verge of a new discovery often find that the discovery has been made many years previously and was perfectly well stated and ready for their use. Library facilities are not as yet so arranged that we can avoid chaos when getting our knowledge together. Saturn and Rhea, the Titans, were children of Earth and Heaven which sprang from chaos, and chaos at the present moment, pregnant with the energies represented in our field of medical knowledge

can give us Titans. Medical journals and medical societies have been increased enormously in numbers since the days of my entering practice thirty years ago, and these are the Earth and Heaven springing from chaos which will give us Titans in the medicine of the near future.

Let us say that a young man of good family and antecedents has decided to take up medicine for a profession. He has been trained in ways which belong to polite society, and is capable of imbibing the true professional spirit as naturally as a bird sings. He devotes three or four years at college to an academic or scientific training, with the hopes and fears, trials and tribulations of examinations, and the ambitions of scholarship. He adapts himself to his fellow students in such a way as to establish a position among his fellows and to engage their confidence and interest. Then there are the four additional years at medical college, with still more examinations, many of them severe. Medical study requires application that is often injurious to health unless one has acquired methods of living which allow him to follow the life of a scholar and maintain good health at the same time. Our young man acquires classified knowledge from authorities in Medicine and in allied subjects, under the guidance of teachers who are trained in methods for making use of such knowledge. A student while at medical college is still further gaining place among his fellows as well as with his teachers. If he succeeds in passing all of the college examinations, there is the competitive examination for hospital position. This is such a severe examination that comparatively few of the applicants are chosen for the best hospital positions, which give opportunity for obtaining practical knowledge of professional work in its concrete application. There may be subsequently a year of travel for the student—allowing him to see leading authorities of the world—the masters in special fields. This young man,

fully prepared for a typical professional career of high order, opens an office in a town and finds alongside of him another man who has spent only a few months in the study of some medical fad. The latter has come from an environment which gave him none of the graces of good social life. There has been no inculcation of high principles, and he has little conscience about boasting of his prowess, about talking shop on any and all occasions, and convincing people that the educated man is out of date. According to the loose medical laws of many of our states, this medical faddist, while not ostensibly given full privileges to practise, really has practically full privilege.

I recently met a doctor of frank manner and engaging personality in consultation in another city. One remark in the course of our conference led me to ask where he graduated. He had graduated as an osteopath, but finding osteopathy a fake basically he had studied medicine by himself, had attended various clinics, and was practising medicine upon his osteopath's license, employing good parts of osteopathy incidentally. He ran the risk of being held up by the authorities, but was such an able and agreeable man generally that none of the local doctors wanted to report him to the authorities. The school at which he graduated requires only a few weeks of instruction—and instruction upon a false basis at that. This man had gone into the study of osteopathy honestly, being misinformed upon the subject originally.

I have met several honest men among the osteopaths. They did not know just what they were doing when taking up the subject. Later, it was along the line of their natural inclinations to confine themselves to the legitimate part of their method and to avoid pretence. They have told me that the most pretentious rascals were making the most money. In the face of that fact honest ones were contented with lesser

incomes. This heartening sign indicates that we need have little fear of honest men no matter what their occupations.

The faddist may not infrequently secure an income many times as large as that of the educated man, because he has no scruples about employing methods to which the educated man is superior. The public in this semi-domesticated world of ours is prone to side with the pretender, that being a trait in human nature, and he will drive what he calls "good business." His nomenclature at least will be correct. The attitude of the public toward the medical profession in this respect is not very different from its attitude toward financiers. A man carefully trained in methods of good investment, conscientious in his advice to all, and particularly to those who cannot afford to lose, sometimes suffers loss himself rather than allow some needy individual whom he has advised, to stand a loss. I have known even a lawyer to stand personal loss in this way, and to save money for a woman who subsequently invested it in a fraudulent scheme of the sort which newspapers are allowed by law to publish. Such a man is by no means secure in his position with the public when some irresponsible promoter of an interesting financial scheme promises quick and large profits to all who invest with him. We have in this a demonstration of one of the characteristics which has been developed in the course of evolution of the higher intelligence, when we departed from the stage of the lower animal, and lost those instincts which serve to keep a rat out of bad investment.

Professor Irving Fisher says, "There is no reason why the medical profession should have lost hundreds of thousands of patients to Christian Science except that these patients were benefited and greatly benefited by Christian Science, after having received no benefit and often injury from the medical profession." He says further, "The example of so-called Christian Science is only one of several protests, more

or less misguided, against the present practice of medicine." Professor Fisher is both right and wrong. Doctors cannot appeal to their clientele after the manner of the Christian Scientists, who are backed by a religion, by the legend of a mystic mother, and by an inspired volume and extravagant claims. Unless the medical profession had been willing to make for itself such a backing, it could not have appealed to the sort of people who are benefited as Professor Fisher says they are (and as they really are), by Christian Science, nor is there any way within the dignity of the medical profession which will allow it to care for these particular hundreds of thousands. Let them obtain benefit from Christian Science. "The protests against the present practice of medicine" are at the present moment being made in the best way within the ranks of the profession itself, and any extraneous sect can have but little influence upon the advance work that is being done. Physicians are as good as the public demands (like everything else), but it really is now a duty for physicians to teach the public to demand better physicians on the whole. The public will then attend to its part of the work retroactively. The general public as yet does not freely reward the doctors who are proficient in learning, with its patronage. To-morrow when such a custom does become general, greater advances will be made in general professional proficiency. A premium is placed upon social qualities of agreeable personality and good-fellowship rather than upon science and scholarship during this, our trick-bear stage of development.

A physician who is wholly engaged in the science of his profession, may be quite oblivious to his personal appearance, and to his dress. The better social student on the other hand is shrewd enough to appear well-dressed and neat at all times, and the people knowing more of that sort of thing than they do of science, more readily choose the latter physician. It is

almost imperative for young men to follow the plan of an actual charlatan in this one respect at least, and pay people the compliment of appearing well in their presence.

Most of the enormous "business" that is now in the hands of medical pretenders will be turned over to the regular medical profession when it becomes customary for doctors to educate the public properly instead of making critical analysis of colleagues in the presence of the laity.

Medical sectarians who seek legislative approval at Albany almost every year, make strong efforts to break down the bars that have been established by the regular medical profession. They consist of Christian Scientists, Osteopathists, Chiropractics, Phrenopathists, Doweyites, Vitapathists, Occult Healers, Kneippists, Somatopathists, Clairvoyants, Esoteric Vibrationists, Psychic Scientists, Magnetic Healers, and in fact a long list, each group denouncing all of the others, excepting when combined against the regular medical profession. We once had a prosperous Chinese merchant at the club for dinner. He was asked if our missionary work in China had resulted in making him a Christian. He replied, "Guess not yet. When I talk with Mefdis he say 'You come my side, Pispical and Presbiterium no good.' When I talk with Presbiterium, he say, 'You come my side, Mefdis and Pispical no good.' When I talk with Pispical he say, 'You come my side, Mefdis and Presbiterium no good.' Guess they all ought to know!" Now, when we have the same sort of thing going on among the different medical sects, it seems to me that the state must demand educational requirements, and all practitioners of medicine must qualify according to prescribed standards. Having proven their ability to do that they may practise whatever they please. That is all we ask of sectarians before the Legislature every year, but there is unceasing outcry against the medical trust,—meaning the regular profession.

When medical pretenders appear before legislative bodies we often wonder why legislators make no better comparison between them and responsible members of the regular medical profession. It is our own fault. We have trained the legislator ourselves. He has heard one physician speak of another many times. In his own town there may be a number of physicians not one of whom speaks of another in better terms than he speaks of pretenders. This is because of their high unsatisfied ideals, but how is the legislator to know that? He has been busy with other things. If he knew as much about the medical profession as he knows about the law, or insurance, or railroading, he would be equipped for using right judgment in the matter, but his time has been fully occupied with other affairs. The legislator has depended upon us for instruction and we have instructed him. Some legislators know very well that responsible members of the medical profession have spent many years in the study of established methods, that they are *au courant* with safe procedures, and that they are to be trusted as all-around men who are familiar with their subject as a whole. These legislators may or may not know the origin and life history of pretenders. One committeeman at Albany said to me, "For Heaven's sake, where do all these cranks come from? I never knew any of them when they were young." As a matter of fact the ones of whom he was speaking never were young. They had turned in from all sorts of other occupations, in which they had been failures, in order to take up medical fads. They were seeking rights to practise and were being opposed by responsible members of the medical profession. When pretenders begin to have serious trouble in the presence of honest legislative committees, they are approached by lawyers of questionable character, yet sometimes of great skill. These lawyers are of the sort who sometimes obtain positions with large corporations on the ground of

their influence with legislators and courts. Corporations are said to be actually blackmailed at times into retaining lawyers of the sort who offer their aid to medical pretenders when the latter are organized and have sufficient funds at their disposal. Ways are then found for obtaining discriminating legislation against the regular medical profession and in favor of curios who exploit the ill for profitable personal ends.

Dr. C. S. Huffman in the *Journal of the Kansas Medical Society* (1914) says that "After an experience of about eight years as a member of the Kansas Legislature, the essayist is led to believe that the average legislator is opposed to almost anything that the regular medical profession wants, in the matter of legislation pertaining to the practice of medicine; enforcement of the Pure Food Law, and work which is being done by the State Board of Health." "While we find a great many in both the Senate and the House friendly to us, at the same time we find a large majority ready and willing to support any measure that vitally affects or strikes at the regular medical profession."

One is tempted to ask again: "What is the matter with Kansas?" and yet we find on reference to the table relating to ten thousand fee-splitting circulars (quoted elsewhere) that Kansas holds its head up fairly well. Our conclusion would be that legislators in other fee-splitting states have just as little regard for the regular medical profession. We must continually remember that man as yet is only semi-domesticated, and the wilder the medical profession in any state, the wilder the legislators of that same state. Both sets of men come from about the same social stratum originally, and grading relates to state social standards on the whole. The few men in the medical profession or in the legislature whose standards are high may have more difficult work, but at the same time a more elevated life joy which will serve in a compensatory way

for their troubles. Natural aristocrats belong to a privileged class in the best meaning of that expression.

The League for Medical Freedom has pushed forward the Christian Scientists as their best cards before the legislature, the moneyed patent medicine interests remaining out of sight, but furnishing the sinews. The League people knew that legislators would recognize their sordid motives, unless they chose representatives with a great deal of shrewdness. Christian Scientists representing an over-cultivated social element so largely, are really very influential. All of these people have large amounts of money for securing legislation which will be favorable to their interests.

On one occasion when I had been sent to Albany to address a legislative committee, the train arrived about midnight. The two best hotels were full. A gentlemanly appearing man who stood near me at the desk and who had arrived on the same train suggested that we might find quarters at another hotel of which he knew. That was full. We journeyed about together and finally brought up at a hotel in Troy about two o'clock in the morning. There was only one room and one bed at that hotel. We decided to share the quarters. In the morning after an enjoyable breakfast together we made our way toward Albany, and found that we were both bound for the Capitol. My chance acquaintance told me that he was going there to speak for Christian Science. I told him that I was going there to speak against it, but that we would have dinner together afterward if he would meet me at the hotel.

Sectarianism in medicine is fortunately not recognized by the United States Government, or by any other great government, and is recognized by the states only in proportion to the influence which is brought to bear upon venal or careless legislative committees. Eventually the states will act like the central

government in recognizing only one standard group of qualified physicians. There will be freedom for any man to study the beliefs of various sects and call himself anything he pleases. No harm will be done so long as he has first qualified himself in the essentials of a certain standard education. It is interesting to observe the way in which states are fooled by sectarians while the central government keeps its head.

Medical sectarians and faddists have gained much legal recognition in many states. This may sometimes have been due to ignorance rather than criminality on the part of legislators. The reason why I believe it was sometimes due to ignorance is because it is nearly impossible for laymen to exercise good judgment in matters requiring technical education for their comprehension.

One cannot realize what influences are brought to bear for furthering selfish ends or unwise ends, unless he has been in a position for observation. My father was governor of one of the states, and all medical matters which were brought before him were given to me for consideration. He was a most conscientious man, just, wise, large minded, and bound to do what he thought was right in the face of all opposition, and even against my counsel in some cases. The trouble which I had in placing matters in a clear light for him showed how difficult it must be for a man in power in any state to know what is best for the interests of the medical profession and for the greater interests of society.

At a hearing on the osteopaths' claim for recognition at Albany, one of the speakers seemed to make a great impression upon the committee by saying that osteopaths would be driven out of the state, if they could not be licensed. Before me in the audience sat one of the leaders of the osteopaths who had driven several people out of the state. One of my friends in the profession who was present had kept notes relating to

some of the cases of his own which had been under the care of this particular osteopath. One was a case of epilepsy which had previously been under a fair degree of control. The patient died very quickly with intense exacerbation of attacks after the beginning of treatment upon his "displaced bone." Another case was one of progressive paralysis agitans. The patient quickly left the state when subjected to violent manipulation. Another case was one of cancer of the breast subjected to manipulation and rapidly carried to a hopeless stage which drove the patient out of the state. Another case was one of hip-joint disease carried to the point of requiring excision which could have been avoided by regular treatment. The patient left the state. Another case was an acute appendicitis from which the patient was allowed to die without operation after having peritonitis stirred up by the violent movements of the osteopath in attempting to "empty the appendix." All of these people who were "driven out of the state" had formerly belonged in the clientele of just one physician until they left him and were treated by the one osteopath who sat before us in the audience,—and who did not wish to be driven out of the state himself.

The lawyer who was engaged by the osteopaths for presentation of their case at Albany one year happened to be a dear old friend of mine. He had become deeply impressed with the idea of their not being treated fairly, and went into their cause with good faith. One day he came into the office and said: "Now, Tut, I want to have you come up to dinner to my house to-morrow, and meet three or four of the leading oosteopaths personally. You don't know what they are really like—good fellows and all that sort of thing." My reply was, "No. I cannot in justice to my profession go up to dinner with you and the osteopaths, but I will run up later and have a talk with all of you." This I did, taking along a segment

of a spinal column and rib articulations of a lamb. On arriving at the house my proposition was that one of his clients show us how he moved bones, and if the test proved satisfactory to the mind of a lawyer we would then have a conference upon any other question. His clients not only refused to make the test, but the experience so impressed this lawyer that he dropped their case. My friend was an unusually astute lawyer and had been offered a nomination by his colleagues for the Supreme Court bench. If a man of his type did not drop the osteopaths until after actually witnessing an object lesson relating to fraudulent procedure, we may readily understand how easily the average layman may be deceived. On one occasion when describing the people who had been "driven out of the State" by certain osteopaths, one of their lawyers arose menacingly and asked if I knew that what I was saying was actionable. Another one of their advisors immediately called the imprudent one to his seat. (Flexner reports not wanted in court.) The osteopaths make a pretence of superior anatomical knowledge in the presence of laymen, and claim that members of the medical profession are not such expert anatomists as they. The laity cannot know that since the days of Ambroise Paré anatomy has been fundamental mathematics for the regular profession. Many thousands of books and monographs on the subject are to be found in the libraries. Amongst all this mass of serious scientific literature there is not one book on anatomy by an osteopath. These people would not dare to print most of what they say to the public and what the public really believes. Any layman who will take the trouble to step into the meat market and have one look at the spinal column and ribs of a lamb may be trusted thereafter to use plain sense about this question of moving bones. Face an osteopath with a real bone and joint and he quickly runs away from the hot pair of tongs. The osteopaths had to raise their

educational standards. At first some of their schools advertised that after a six weeks' course of study any clerk could stand on a social level with regular physicians and make a larger average income. This was no doubt pretty nearly true. The effect, however, was to load up the ranks of osteopaths with such a swarm of uneducated men that for their own protection they were obliged to raise educational standards. An osteopath whose family is at present under my care tells me that he has very little work, yet he is a man who is naturally very clever, speaking several languages and interesting in various sorts of conversation. He took up the subject because of failure in another occupation.

Farm hands were doing to them what osteopaths had been doing to the regular medical profession. After raising standards there was no longer opportunity for the small clerk to stand on a social level with good physicians and be called "Doc." In order to supply that need for the public, chiropractic came into the field and began to advertise as osteopathy had done previously. When this new method of practice has become overloaded with horny-handed tons of soil, coon-dog men, and remnant stocks of bankrupt intellect, the better class of chiropractors will raise their standards, and their schools will require more and more of the education belonging to the regular profession, finally joining its ranks. Meanwhile the public is cheerfully standing the consequences, and it will continue to do so for every new medical fad which captures the imagination with its pretence. Not only the present-day faddist but others that will arrive to-morrow, will attract people who believe they can afford to pay for something new. During something over thirty years of medical practice I have observed the beginning and establishment of half a dozen great new movements of advance, and at the same time have watched the development of an

equal number of medical fads. Steps of the former were as follows: (1) A valuable movement began from the laboratory. (2) Its exponents were at first assailed by honest men, actuated from the basis of safe tradition. (3) Facts were gradually taken under consideration and weighed. (4) Advanced position was established through recognition by the laity of practical end results.

Fads developed as follows: (1) Some irresponsible individual with a delusion spoke in terms of mystery and conviction. (2) Others of the same type of mind joined to form a nucleus. (3) Unoccupied but restless people seeking to place their minds somewhere, following instincts of variation, joined forces with the faddists. This group included many people of high social position. (4) A fad including people of high social position attracted business and professional men, very much as when a gull finds a school of herrings, actions of the first gull attract a whole flock of them. Architects, artists, brokers, insurance men, manufacturers, added themselves to the throng through motives of personal profit. (5) The business men who had been attracted to the faddist group had a good deal of confidence in each other. (6) Successful men of business, interested in a fad, made it a subject of conversation at the home. Women then promulgated the ideas in cheerful conversation.

We shall have endless movements like that of the gold cure for alcoholism. My own income has never been so large as that of a certain faddist whose books I came to know about seven years after he had graduated from his occupation as a driver of an express wagon. Perhaps someone will say, "Why! All these peculiar sectarian practitioners are not really given a license to practice medicine. They are simply given a license to apply their methods in some sorts of cases!" Running over in mind a rather long list of cases of various kinds, I

do not at the moment recall any sort of case that would not be claimed by faddists of one sort or another.

If osteopathy could be freed from its fraudulent pretensions and placed in proper hands, it would serve an useful purpose. It seems to have entered a field beyond that of Swedish movement and massage. Ross and Sherrington many years ago discovered that certain visceral irritations sent an afferent nerve impulse to definite segments of the spinal cord, from which efferent impulse was then sent out over the peripheral distribution of somatic sensory nerves. The next step in progress in this field was made by Head. He followed up the data of previous observers, and classified into definite groups the zones of cutaneous hyperesthesia which correspond to irritated viscera within the body. Neither Ross, Sherrington, nor Head suggested any important application of this knowledge to practical therapeutics, although Head described the sedative effect of counter-irritation over the cutaneous zones belonging to various organs. The organs were relieved of some of their irritability by resources applied to the skin. For instance, a mustard plaster over the cutaneous zone for the stomach relieves certain forms of gastric disturbance. A hot-water bottle over the lumbar region is helpful in cases of congestion of pelvic viscera. In a paper published in the *Journal of the American Medical Association* for June, 1911, I showed that peripheral trophic nerves are apparently influenced quite as much as are peripheral sensory nerves, by irritation proceeding from the stomach. Practical application of the idea was made in a more careful suturing of the abdominal wall after gastric operations, and attention of the profession was called to the nature of "unaccountable failure of union" of the abdominal wound after gastric operations. Furthermore, cases are recorded in which removal of some tumor pressing upon the intercostal nerves has relieved

chronic gastric disturbance or intractable cough. For the most part, such scattered observations as have been made by members of the regular medical profession in relation to regional somatic response to visceral irritation, have not been classified and arranged in practical form for therapeutic application. It is reported that a spiritualistic dreamer, Dr. Still of Missouri, while partly asleep under a tree one day, became possessed of a fanciful thought that diseases were mostly caused by bones being out of place. He followed up the idea by making manipulation of various bones, particularly of the spinal column, and incidentally noted what appeared to him to be confirmation of his idea. This was the beginning of osteopathy. As a matter of fact, Dr. Still was really massaging the superficial areas of distribution of nerves which corresponded to asthenic or irritated nerves of different viscera. In his ignorance he imagined that he could move various bones into place and "remove pressure from the nerves." Starting from the practical results of a system of massage which was based upon nonsense, a number of followers of Dr. Still began to develop a fanciful system. Imperfectly educated men who took up the subject were often quite honest in their belief that they were moving dislocated bones, but the more highly educated had to become frauds in order to tell patients that they moved bones of the spinal column or ribs into place and kept them there. A peculiar phraseology was constructed by the osteopaths to fit the idea of moving bones, and this is nothing more than a jumble of words belonging to the type of mind of the Indian medicine man. In order to convince patients that bones were being moved into place some of the osteopaths developed a trick belonging to the old-fashioned bone-setters, of snapping the second joint of the thumb in such a way that it gives a patient the impression of his own bone going into place. Later, when the X-ray began to be used for

photographing spinal columns and ribs, a very little trickery of the sort which is well known to photographers sufficed to give a mendacious representation of bones in place, after a previous photograph had pictured the common irregularities which belong to every one, and which, in fact, have no reference whatsoever to disease. Almost every civilized individual has one hip a little higher than the other, one shoulder a bit higher than the other, and certain vertebræ a trifle out of natural alignment. The statement that these "dislocated bones" could be put in place by manipulation was fraudulent when not made by the ignorant. The idea of adjusting bones was promulgated by the osteopaths, because it served a purpose in allowing them to "catch cases." A reformed bone-setter who showed me how to snap the second joint of the thumb in order to give patients the impression that one of their own bones had gone into place told me that it was not even necessary to snap the joint of the thumb in order to make some people "hear a bone go into place" because certain credulous individuals who were expecting to hear such a sound would hear it when the word was given. This hallucination of hearing is, no doubt, similar to the hallucination of sight which occurs in people who are intent upon seeing apparitions. After a little practice I found it an easy matter to snap the second joint of my thumb in such a way as to make an individual "feel a bone go into place" and much amusement has followed my demonstrating the trick for friends. When sending a patient to an osteopath for special massage and movement I have not always warned the patient about listening to the nonsense about bones. It seemed better to allow the patient to obtain a delusion which would facilitate the engaging of will power by any means whatsoever. I have made no attempt at turning a patient from Christian Science treatment, excepting in cases in which measures for more certain relief

were clearly apparent. The chief danger lies in giving a sect legal right to make choice of patients who are to be subjected to treatment. The osteopath who captures a case by fraudulent or ignorant pretence, then proceeds to apply forms of manipulation, which may prove beneficial provided that they are applied in the right sort of a case. But right here is where trouble so often occurs and thousands of people are damaged. I have known of many cases in which permanent injury or death resulted from manipulation applied wrongly and ignorantly. Tuberculosis of the bones or joints is often lighted up disastrously by manipulation treatment, malignant growths are started into activity, and such internal disorders as slumbering appendicitis or cholecystitis are frequently aroused into violent response to wrongly applied manipulation. The osteopaths have made claims both ignorant and fraudulent about the diseases which they claimed to cure. Schools of osteopathy sprang up in many states, and great efforts were made to secure privileges to practise, which were given in a number of states, thus placing the osteopaths practically upon a footing with members of the regular medical profession. Schools which required a course of study in osteopathy lasting only six weeks were freely advertised as placing their graduates in position to compete with experienced physicians whose education required many years of training, and this statement was boastfully made in impudent advertisements in magazines and the newspapers. Methods which are familiar to all of us were brought to bear upon legislatures, so that in many states the osteopaths were given recognition. The history of osteopathy from now on will be similar to that of the history of homœopathy. Fraud, pretence, and self-delusion will gradually give way before better education. The osteopaths little by little will take up more and more of the text books of the regular profession, until finally their schools will

require practically all of the text books of the regular profession and peculiar manipulation will be merely added as a part of special therapeutics. Meanwhile, the regular profession will have learned much from osteopathy. The regular profession has learned much from Hahnemann, from Mrs. Eddy, from Dowie, from Pleasanton, from Perkins, in fact from all of the founders of medical sects which have come and gone in the past. That is why we ask all new sectarians to learn what the regular profession has learned, and to pass examination showing that they know, before we allow them to try their treatment out on the public. The public has a wrong idea in this matter, and does not realize that the regular profession stands quite ready to allow any sect to practise what it pleases after learning what has become standard knowledge. The regular medical profession has learned perhaps more from homœopathy than it will learn from osteopathy, which started from a more ignorant and fraudulent basis. Homœopathy has always been upon an honest basis, with nothing more than metaphysical self-delusion to be charged against its former absurdities which are now recognized as such by its own educated members. At the present time there are many adherents to this faith to whom I would entrust myself if ill. All of the different sects in medicine gradually approach and finally enter the regular medical profession in their chief practices. Their peculiar tenets are shed for the most part. When the more conscientious osteopaths began to awaken to the shame of enticing ill people into the hands of ignorant practitioners they raised the educational requirements for students.

Flexner in his Carnegie Foundation report upon medical education in the United States and Canada says of the osteopathic schools that "they fairly reek with commercialism.—At one of the chief schools an applicant will be accepted if he passes examinations in English, arithmetic, history and geog-

raphy, and if he fails to meet these requirements he may get in anyway." Flexner's report states that "in the fundamental matter of anatomy the osteopathic schools are fatally defective, and none of them have an equipment for teaching diagnosis." The rival school of chiropractors then arose.

I record here verbatim an advertisement taken from the Cosmopolitan Magazine for November, 1913.

Similar advertisements offering to give anybody professional standing after six weeks of study were formerly published in the magazines by osteopaths. A grain of wheat, stripped of chaff, is finally given to the regular medical profession from most of the medical sects. The public meanwhile has to suffer fearful damage at the hands of sects that are being tried out. It is the public that bears the expense of all these experiments.

Any new fad is taken up largely at first by the neurasthenics, who are extremely susceptible to suggestion and not always amenable to treatment by rational methods. It is a question if osteopathy, although at present fashionable, will ever secure the hold upon our neurasthenic class that was gained by homœopathy because its methods are more violent. Homœopathy gained strong position because of its polite and gentle drugging and agreeable detailed attention. Osteopathy really does accomplish much of good, if properly applied, in the right class of cases, even though it shows as much contempt for diagnosis as homœopathy showed at one time. Not many years ago we often heard the homœopathist say, "Give me the symptoms of a case and you may have the diagnosis." The osteopaths say, "Your disease is due to some bone being a little out." This contempt for real diagnosis brings out its own absurdities and hastens the movement of all medical sects toward the regular profession, which knows that diagnosis presents the most difficult feature in any case. The regular

profession knows that many years of study are required for simply acquiring methods showing the way toward diagnosis. It is an old saying that when a right diagnosis has been made, anybody can "treat" the case. Osteopathy is not for the poor, and it flourishes best where money is most abundant. It first gained foothold in states in which medical laws were lax, but retired from these sections as rapidly as it gained foothold where better fees could be obtained. For instance, osteopathy early extended into Vermont which at that time was a sort of dumping ground for all medical rubbish, to the discouragement of educated responsible physicians in that state. Vermont, however, while dearly loving fads, does not care much for the expensive ones, and osteopathy being an expensive fad was soon heard little of around the Green Mountains, its practitioners having apparently moved nearer to good supplies, leaving an entire state cruelly to its fate.

Along with the sagging colon in neurasthenic patients there is apt to be relaxation of the sacro-iliac ligaments, together with an abnormal curvature of the sacral and lumbar vertebræ. This condition has been overlooked for the most part by the general practitioner, who has so many other things to keep in mind. It was seized upon at once by the osteopath, who found that his exercise and massage developed the muscles, and exerted a marked influence toward arresting progress of the deformity. Incidentally a number of other neurasthenic features were relieved by the massage and movement. The same gain might have been made quite as well in some cases if the patient had gone into mountain climbing with good out-of-door life and abundant simple food. Neurasthenic patients, however, are precisely the ones who like to have their exercise done for them by somebody else. They are willing to pay from three to five dollars per exercise. This is not due to lack of good intention. Some neurasthenics of high courage

and character actually exhaust themselves the more through bringing will power to bear upon attempts at helping themselves. Having captured the imagination of the patient by a description of disclocated bones, the osteopath secures a better result often than would have been gained by the plain advocate of Swedish movement or massage who honestly states the nature of the case. The reason for this is because human nature is comical in preferring suggestion to fact.

Osteopathists and Christian Scientists and other sectarians make little provision for the poor as a rule, after their money is gone, although reduction of fees is made. The thousands of impecunious fall back upon the regular profession. In Christian Science if one fails to get well the fault is his. It is "up to" the patient. How happy we physicians might be if we could shift responsibility to the patient, and keep a clear conscience ourselves meanwhile. The shrewdness of Mrs. Eddy is demonstrated in this shifting of responsibility to the patient.

In Christian Science there is a certain fundamental lack of sympathy. It often steps in cruelly at the place where sympathy and tenderness are needed, and makes faces at the sufferer who continues "in error."

In one of the most responsible of the New York newspapers I find to-day among the editorials this note relative to mental healers: "and we cannot ourselves see the danger of giving hope, even though elusive, to the men or women burdened by a deep despair." Most laymen, I am sure, would take the point of view of this candid editor, and it introduces the chief obstacle when doctors request legislators to stand out against medical sects which are seeking for legal recognition. The tendency of legislators is to "give these healers a chance if they think they have something good, and let the public find out for itself." The public eventually does find out about the damage

which has been done, but can we not do a little better than that for folks to-morrow?

When an advocate of the "oil treatment for appendicitis, without operation" reported a series of fifty patients cured by that method, I publicly offered a thousand dollars to any charity he would suggest if he would publish a statement that none of these patients had subsequently died from appendicitis or had not been operated upon for appendicitis after they were cured. He did not accept the offer, and this fact apparently set some people at thinking. It was not quite fair on my part to make such an offer, because other doctors told me of two of his cured patients who had died subsequently to their "cure without operation," and of other ones among his cases that had been operated upon for recurrent appendicitis by other consultants.

In the regular medical societies the question of possible damage from a peculiar procedure is all gone over very carefully before an innovator receives any recognition at all from his fellows. The very reason why we attack innovators in our own ranks is because so many fanciful and untried theories are constantly being foisted upon the profession by two classes of men. First, by the honest advocates of some new procedure. They are earnestly trying to be useful, but have not presented satisfactory "briefs." On the other hand, there are dishonest men who directly seek to profit from the gullible suffering public. A new theory upsets established methods which mighty good doctors are employing in their every-day work for the purpose of helping people who trust them. These responsible doctors do not propose to have much experimenting done upon the kind of people who put trust in them until they have looked the new theory over pretty well, and in their own way. Their single-minded thought is to be of service to their patients. The promoter of any new theory hurts these really

good men when he calls into question their previous judgment and ability. They are bound to attack him, and to make him defend himself, and all of the while unselfishly in the interest of their patients. As a matter of practical history, many, and perhaps most, of the innovators who are thus attacked are really defeated. This works out well for the benefit of the public. Doctors are eager enough to get hold of new ideas which have the right ring. I know of certain doctors who are innovators by habit, because they are naturally inventive. They have been the subject of persistent attack almost from their first entry into the profession. By the time when they have carried a new idea to permanent position at the front, other doctors who have appropriated it remember only that the innovator at one time made himself disagreeable to the profession in some way. They have forgotten just how it was. The public obtains the benefit. Any man who proposes to be of service through new work in the medical profession must be essentially altruistic. He must be prepared to take punishment like a football player. He may suffer the loss of thousands of dollars of income, and must patiently become accustomed to having his private character attacked, because an inimical attitude of mind on the part of serious critics is carried beyond bounds by the unthinking who try to be interesting in condemnatory conversation. If the innovator whines he is vain and weak. The satisfaction of knowing that he is really moulding professional thought for the benefit of the public, is his compensation. His ideals are ideals of usefulness, and he is willing to stand attack when realizing that attacks on the part of colleagues may serve to eliminate error that he most of all would wish to see eliminated.

There is a basis of value in all of the systems of hygiene as well as in the systems of other parts of medicine, but this real value is apt to be depreciated when the subject is taken up

by fanatics, and when exaggerated value is ascribed to the positive testimony which comes under their observation. They lose that divine sense of proportion which is the most valuable perhaps of all human faculties, and they throw the whole system into more or less disrepute by disregarding facts which are opposed to their wishes. For instance, vegetarianism has a basis of value. While applicable in its full system to comparatively few people and only in part to others, there are fanatics who would make the full system fit every individual, disregarding the fact that our dental formula indicates that by nature we are omnivorous. Under some conditions of life, as in the far north, one demands the calories of an almost exclusively nitrogenous diet, whereas in tropical regions a diet consisting largely of fruit elements and starches is more desirable. In temperate regions there are individuals who in the nature of their work and environment require a good deal of nitrogenous fuel, while others would be very much injured by the same ingest of nitrogen. There is no doubt that under conditions of civilized life and particularly of urban life, a diet that is largely vegetarian is more desirable than the diet which is commonly chosen as a matter of habit and convenience of market. Chittenden has perhaps given us the most valuable scientific data bearing upon this point, and Fletcher has shown that many people eat too rapidly and their food is in consequence not properly digested. Fletcherism as a system, however, has comparatively limited application, and a wicked wag might point out the fact that some of the most famously healthy animals are those which bolt their food; for instance, the hog, the dog and the bear.

The only conclusive evidence in regard to dietisms is presented by whole races of people. These groups are available for purposes of statistics. Meat-eating goes with progress and domination, while the vegetarian races are ruled and ex-

ploited by others. Man has learned to eat practically everything that any other animal has found edible. That gives him a menu card over the whole earth. Prescriptions of diet as advocated by faddists relate to the faddists alone. Vegetarianism is precisely what is required by one individual, who would be uncomfortable without that sort of diet. On the other hand, such diet would limit the power and efficiency of perhaps the very next man in the row. An enthusiast not long ago told me that he was just about to get out a little book devoted to showing that meat acted only as a stimulant, and was really not turned into much power when digested. I asked him if that was the reason for a tiger being so feeble. He said that his book related to a higher order of animals than the tiger,—that he was referring to man only. I then asked how it was that my Eskimo friends were able to work all day in their kyaks, doing a tremendous amount of work, when nothing else beside meat ever passed their lips for months at a time. He did not seem to find a ready answer for this. The people for whom he was writing were really theoretical people whom he had invented.

One man ascribes his advanced age to the fact that he has drunk plenty of alcohol and has chewed tobacco; another ascribes his old age to the fact that he has eschewed both solaces. In both cases there is likely enough a response to natural instinct, and the explanation may be approximately correct in both cases. Abstinence from alcohol and tobacco might have hastened the death of one, as quickly as their employment would have brought the other to untimely ending, after an unhappy interval.

Homœopathists rendered great service to the regular medical profession by showing the extent to which disease could be treated without real drugs. Hydropaths demonstrated the great range of usefulness of hot and cold water, but made

unwarranted claims, and in consequence they have received more discredit than is really their due. The electropaths got to believe that too many other methods of treatment could be safely overlooked. Osteopaths brought to the attention of the profession the value of combining manipulation, massage, and suggestion, but they made indiscriminate application of their methods. It was necessary for the older homœopaths to deceive themselves in order to develop that degree of confidence which carried healing suggestion to the patient, and which made their treatment more effective than it would have been on a basis of plain fact. It is not necessary for the electrotherapeutists to deceive themselves in order to introduce suggestion, because their apparatus in itself strongly engages the interest of the patient, who then makes better response to the valuable part of such treatment. It furnishes sensation and mystery, two things which are near and dear to the human heart. It is rather essential for the osteopaths to tell patients falsehoods about their bones in order to engage interest, because it was found that massage and Swedish movement when plainly and honestly presented were not recognized at their true value. The Emmanuel movement for psychic healing swept to the fore very rapidly when in charge of its founder and those who are nearest to him. There were not enough capable exponents and teachers, and the capable ones were soon swamped with the crowd of neurasthenics and psychotics seeking their aid. The commercial side soon showed itself, and various churches proposed employing the Emmanuel movement and its financial income for helping to pay off their mortgages. The commercial side develops rapidly in all medical cults and the public comes to observe that fact. The further away any one cultist or specialist gets from the regular medical profession, the less humanity and the more commercialism will be observed before he has reached

the end of his rope. The people as a mass are generally knowing, even when specially ignorant, whenever their attention has been directed strongly enough toward any subject which touches pocket or health.

One of my dear old friends, president of a great corporation in New York, died unnecessarily because he could never bring himself to necessary operation, being misled by a physician who told him that he could cure prostatic trouble by palliative measures. I told him, on the other hand, that he was seriously menaced and would be likely to lose his life at any time unless the prostate were removed. Here were two men in whom he had confidence, telling him directly opposite things. Had it been a question of investment and determining the security of bonds, he would have gone at the matter systematically and would have come to a right conclusion; but property being of so much more importance than human life, even the self-preservation law may not lead a banker to apply to the selection of medical consultants methods which he would employ in advance of bond investment. Because electrotherapy, hydrotherapy, and other special sorts of therapy have so much in them of value that has not been recognized by the general practitioner, their advocates are prone to become excessively zealous in well meaning effort to prove to the rest of the profession the value of special therapy. The physician of my friend was not dishonest, but worse than that—an honest special pleader of such degree that he failed to give consideration to the whole range of resources for such a case. The more skeptical the regular physician, the more earnest a special therapeutist becomes in efforts to prove out the value of his special therapy in all sorts of cases. The result is more or less disastrous upon the patient, who has to prove that the therapy was not valuable in his particular case quite as often as he proves that it was

valuable. The surgeon is a special therapeutist. A patient's responsibility ends when he has made wise selection of a general practitioner who will make wise selection of a special therapeutist of any sort when one is required.

Magnetic springs come under the healing of faith cure therapeutic resources. If we drive an iron rod into the ground at right angles to the plane of the earth's surface, it becomes a magnet from the influence of terrestrial currents. People who put in driven wells are not always aware of this fact. Accidentally noting that the iron pipe is a magnet, they are apt to assume that the water is full of magnetism. They sometimes advertise the "magnetic wells" and attract customers, most of whom are greatly benefited by the so-called magnetic water. As a matter of fact the benefit comes only through suggestion, water enough, and relaxation from cares while they are sojourning in the vicinity of the gifted water pipe.

Rest-cure, like any other useful therapeutic resource, requires to be analyzed in relation to its efficacy for special cases. An hysterical patient treated as a neurasthenic will obtain transitory benefit from the rest-cure. If the neurasthenic is treated as an hysteric, there will be little result. If a patient with neurasthenia which has been precipitated by the influence of peripheral irritations or toxic influences undergoes the rest-cure, he may improve rapidly for awhile, and then slowly begin to relapse as soon as ordinary occupation is taken up again. Toxic neurasthenia which commonly depends retroactively upon some peripheral irritation, may be benefited while the patient is undergoing rest-cure treatment, but the symptoms all return when the patient gets about again, because the original conditions persist.

A mental healer was recently convicted in the West on the charge of obtaining money under false pretence. It was

testified in court that he agreed to think intently at a certain definite hour upon the disease of any one correspondent who had written him and had sent cash. It was proven in court that our think-healer had to employ twelve typewriters for answering letters from the various correspondents, amounting to several thousand in number. Now if the healer had thought intently about the troubles of each one of these several thousand correspondents at a certain hour every day, he would have neglected his advertising. No doubt most of the people received some benefit through self-suggestion. If I imagine that anyone is thinking kindly of me for an hour a day, it is worth all of two dollars.

The number of quacks in a locality is an index to the character of the regular medical profession in that locality. A mass of laws relating to quacks will not count for much. When the regular profession satisfies people, quacks cannot live abundantly in that neighborhood. Physicians are getting to the point of doing less drugging, and giving more teaching. We shall eventually need fewer laws relating to quacks. No treatment can be right unless a right diagnosis is made, and that requires long years of study in the fundamental branches of the profession. So-called "schools of medicine" fade away rapidly as fast as diagnosis is made the chief goal. There is no royal road to diagnosis.

Many of the large patent medicine firms obey the law through the aid of skilful lawyers. Take for instance a case reported in Collier's Magazine relating to a preparation that is extensively advertised for "kidney disease." It is widely exploited, but fraudulently, and is really dangerous in cases in which kidney disease is actually present. The Post Office Department obtained evidence sufficient for the issuing of a fraud order shutting this preparation out of the mails, but no fraud order was issued. The United States District Attorney

said that the case was a sound one for criminal prosecution. It was prepared for the Department of Justice. The Bureau of Chemistry at Washington tried repeatedly to bring the case of this nostrum into court and oblige it to face prosecution. The Solicitor in the Department of Agriculture at that time granted delay after delay. The fortune derived from the sale of this harmful nostrum amounts to several million dollars. It is the most important business of a certain small city. The proprietors own the newspaper which has the largest circulation in that part of the state. The members of the company are officials in a large bank in the town, and they have held public positions. All of this power and wealth rests upon fraud and knavery. The nostrum is supposed to be a cure for kidney disease, but alcohol is the chief drug constituent (amount to about nine per cent., which is not far from that of champagne). A victim of kidney, bladder, or liver disease, for which the medicine is advertised, is taking alcohol which is injurious to most of these patients. The nostrum contains a large amount of sugar, and this also is injurious to many people with these diseases. There is nothing among its herb extracts that will cure a patient of any of the diseases which are specified in the advertised promises. The proprietors profess to give medical advice and to prescribe medicine for diseases which they pretend to diagnosticate by mail. They describe what is found in specimens of urine as a sign that their medicine must be used. The Post Office Inspector sent specimens of horse urine and of weak tea to their laboratories, and he received in return an analysis announcing a dangerous condition of the kidneys and an urgent recommendation to take the medicine at once. The Post Office Inspector went to examine the laboratories, but found a young girl in charge of this department and a number of employees who were handling form letters. The young girl

knew nothing about the subject of urine. She is society reporter for a newspaper in the town. The United States District Attorney before whom the case was taken for criminal prosecution openly expressed his intention of making things hot for the nostrum people, but something happened and it was never done. Members of the local Republican machine and the United States District Attorney got together. The latter said that the case was not strong enough for criminal prosecution. The concern, however, was using the United States mails for the purpose of obtaining money under false pretence with at least four fraudulent features: (1) Analysis of urine which was not made. (2) Diagnosticating and prescribing for disease without license for the practice of medicine. (3) Selling medicine on false representation to people who are entirely free from kidney disease. (4) Injuring people who had real kidney disease by persuading them that alcohol and sugar would be beneficial. In the Department of the Bureau of Chemistry and in the Board of Foods and Drugs Inspection prosecution for the misbranding of drugs is supposed to follow complaint. There was no prosecution for the misbranding of this nostrum. Drs. Wiley and Dunlap recommended prosecution, but the Solicitor who was a self-confessed falsifier of government records, acted as an obstruction. He finally recommended prosecution, and the case was turned over to him for legal preparation. He issued a memorandum explaining that responsibility for the long delay rested with the drug division of the Bureau of Chemistry. The Bureau of Chemistry replied that the material had been ready all the time, but the delay was due to the Solicitor's contriving. The fraudulent nostrum had beaten the law by special favor and constant delay. The proprietors threatened to take the advertising of their nostrum from all newspapers that reported anything detrimental to patent medicines of any sort.

Newspaper proprietors of high class are really interested in the public welfare, but a large amount of ready money for advertising something which will kill or injure a whole lot of impersonal folks, is acceptable to other newspaper proprietors.

Self-prescribing for "kidney disease" is almost universal among the ignorant and among the fairly intelligent. People know about where the kidneys are situated, and the symptom of pain in the small of the back has been much employed by dealers in patent nostrums. As a matter of fact there is no pain at that site with most of the real kidney diseases. Pain in the small of the back is commonly a toxic manifestation like headache. It is about as frequent of occurrence as headache, and generally refers to a distant source of poisoning. Sometimes it represents reflex irritation over the area of superficial distribution of sensory nerves. These nerves are receiving their impulse perhaps from a segment of the spinal cord which has been excited by an afferent impulse coming from a pelvic organ. There are nearly as many people with pain in the small of the back as there are people with headache, and the popular delusion that such pain relates to the kidneys has made hundreds of millions of dollars for nostrum venders. It has made an army of poor people poorer and at the same time has diverted them from obtaining proper medical advice. Believing that they knew what caused pain in the back, these people bought their own remedies. Pain in the small of the back has sent hundreds of thousands of people to their graves with drug habits. The nostrum dealers presumably know there is nothing the matter with the kidneys in these cases. They realize further that their medicine will not be bought continuously and in increasing quantities unless it includes some drug for which a habit may be established. We must not say that people with pain in the lumbar region who take nostrums for kidney disease, belong to an ignorant class that

may as well be eliminated anyway for the good of society. I have known very useful citizens who had become victims to this delusion through the advertising skill of nostrum venders. The state for its own good may some day prevent people with pain in the small of the back from treating themselves for kidney disease. Not only is physical injury done by nostrums, but alcohol and other drugs which they contain lower the moral tone of people to such an extent that the state suffers incidentally on that score also. One of my beloved friends in the profession lives in a city in which a patent ear drum is manufactured. This ear drum is described in the *Journal of the American Medical Association* for 1913, as an article which is fraudulently advertised, worthless and dangerous. The proprietor has become opulent and enjoys all of the luxuries afforded by great wealth. My friend, Dr. McM., who lives in the same city, is a man of the very highest scientific attainments, famous for his charming social qualities, and he has occupied the highest place of honor in the gift of the American Medical Association. He has saved the lives of hundreds of people, has given comfort and happiness to thousands, has furnished inspiration as an ideal character for a host of young men—and older—yet he has to be careful about expenditures, and is not free to give largely to the cause of science in money endowment. His income does not compare favorably with that of a man who is reported upon investigation to be deceiving and injuring the people for selfish purposes. The difference is due to a condition brought about through what man calls his higher intelligence.

One of my old college friends who is in the patent medicine business with a really useful line of household remedies, tells me that he receives a great many photographs from people, together with testimonials, asking to have both published in the newspapers. Men who enjoy the personal notoriety of

having their pictures and names in the papers would testify that a medicine for the troubles of women had cured them of illness obtained from that source. My friend says we need not suspect that testimonials are written up in the office of a company, because all of the patent medicine men receive more than they can use. He and I are fond of sitting together before the open fireplace and discussing phases of human nature, while watching the cheery red flame of an apple limb making its way through a squirrel hole, the licking bluish light of hickory confidently gaining headway about a solid log, and the combustive flame of sassafras making great ado before settling down to an even yellow blaze. With comforting pipes, in our easy chairs, we go over experiences together. He tells of the inner secrets of the patent medicine business, while I amuse him with quotations extending from Moliére to Bernard Shaw in their bearing upon real doctors. If the best of doctors are the best of all men because of their opportunities, and if the worst of doctors are the worst of all men because of their opportunities, we shall always have both sorts because the public is not clear about the difference. It cannot distinguish between patent medicines which are really useful household remedies and patent medicines which create drug habits and cause endless misery.

One of my friends, who obtained patent rights for evaporating milk in such a way as to make a dry granulated preparation, told me that he tried for years to obtain ten cents per pound for this article, which cost him four cents per pound to make. Offering it upon its merits for food value, he made no progress. Another concern added a common drug, and advertised the mixture as a cure for all sorts of nervous breakdown, dyspepsia and neurasthenia. This firm immediately obtained a great sale for the preparation, at a price of more than three dollars per pound. Testimonials poured in from

some of the most famous men in the country, attesting to its value. Various newspapers and magazines now carry the advertisement, for which hundreds of thousands of dollars are expended annually. The facts in a case of this sort are so well known "in the trade" that it is a never ceasing wonder, even among manufacturers of "proprietaries," that the facts do not become generally known. They are not secret in the "trade," but are discussed freely. This is an example not only of the way in which people like to be deceived, but it shows the value of advertising. A preparation of this particular sort actually secures one common drug effect and it serves as pretty fair food at its real value of less than ten cents per pound. It advances education greatly because the enormous amounts expended for advertising allow the magazines to obtain larger circulation, and to spread their information about politics, poetry and police.

Many of the proprietary articles which are placed upon the market for physicians are extremely valuable, but there is always competition between commercial houses. If one mentions any such article when publishing a paper or addressing a medical society, he is promptly beset by rival manufacturers. They send to him representatives who have a reputation for being good talkers. Reference to proprietary articles when published by a physician is apt to be seized upon for advertising purposes and thousands of copies are sent out, but not in the plain form which would appeal to physicians. It is almost impossible for the manufacturers to avoid making use of display type, attractive covers, and all that sort of thing, which appeal to people in the commercial world, but which are extremely obnoxious to members of the medical profession, who do not care to be impressed by anything excepting a simple fact presented in the simplest way. Further than that it is generally believed in commercial circles at least, if not

in professional circles, that a physician has been given a *quid pro quo* for bringing forward a proprietary preparation, and this idea reduces him at once to a commercial level in the minds of readers of his article. On one occasion when it was difficult to avoid referring to a proprietary article of value, I was shortly afterward offered several thousand dollars' worth of stock in a rival concern if I would state over my signature that their preparation was the best. Their confidential man offered to go one better over any proposition "that had been made to me by the confidential man" of the concern whose article I had mentioned. When a proprietary article of great value has become established and has been approved by the Council of Pharmacy of the American Medical Association, one need not be so carefully on guard. Ask any manufacturer if he would approve of your advertising the good product of a rival house and the situation will be clear.

"Nostrums and Quackery," published by the *Journal of the American Medical Association,* may be obtained through any book dealer, and will furnish about as much dramatic reading as any other literature extant. There is opportunity right now in this unexplored field for the dramatist. With this book at hand he might prepare for the stage a telling play which would really serve the public better than white slave literature, which leads thousands into immoral lives of temporary ease by showing how it is done.

The harm done by self-prescribing on the part of the laity is incalculable, even for such a standard sort of real disease as "malaria," and with such a standard drug as quinine, which is bought in some places in the South in grocery stores. Quinine, like any other drug, is a poison unless properly used. In this country there are at least three species of sporozoan parasites that have been classified as producing different types

of malaria. These parasites are introduced into the blood of healthy men through the probosces of three species of anopheline mosquitoes which have previously bitten patients suffering from different kinds of malarial fever. Each malarial microbe which has been introduced into a man through the agency of a mosquito pierces a red blood corpuscle, in which it lives and grows like a grub snugly curled up in a chestnut, feeding upon the hemoglobin of the blood corpuscle. All of the malaria microbes of one "infection family" have the habit of producing their spores at about the same hour. Chill, fever, and sweating are caused by a toxin which is liberated in the patient's blood on the day of segmentation of these parasites. Their poison is eliminated by the patient's emunctories in the course of a few hours and he then feels fairly well again. Another brood of parasites comes to maturity on its appointed day and spore forming with its consequent effects upon the patient follows. If the patient has been infected by several broods of one species of protozoan the spore dates may overlap and the fever becomes continuous. The same thing may happen when quinine interferes with the spore formation of one brood. *Plasmodium vivax* produces its spores every other day, and causes tertian fever; *plasmodium malarii* forms spores every three days, and causes quartan fever; *plasmodium praecox* sporulates irregularly, and causes pernicious malaria. Quinine when skilfully used in different ways for meeting the conditions brought about by these different parasites is commonly curative, but sometimes harmful even when employed by the very best authorities. Further than that, poisonous doses of quinine are often given by physicians on mistaken diagnosis in febrile diseases which prove not to be malarial at all. The quinine itself may result in the production of congestion of the alimentary canal, depression of the cerebral and spinal centres, depression of

the vasomotor centres, and secondary interference with the heart's action. It may cause cerebral congestion, defects of vision, permanent deafness, delirium, stupor, and certain hemolytic effects classified as special forms of pernicious fever and malarial cachexia. The improper use of quinine may also cause the appearance of numerous sexual forms of the malarial parasite instead of the common asexual forms, and when this occurs the patient is in a condition favoring an endless number of relapses. Further than that, it makes him a menace to the community, because mosquitoes which bite him are transferring the parasites to other good folks in the neighborhood. A case of malarial fever which may be cured by proper administration of quinine at one stage of the existence of a plasmodium may, on the other hand, be converted into one that is practically continuous and incurable. In cases in which quinine has been used carelessly and the parasites have become immune against its influence they seem to become at the same time particularly susceptible to the influence of arsenic, so that a single injection of salvarsan will sometimes destroy them at once completely. Quinine at all times has a tendency to lessen the oxygenating power of the blood and it then retards the reconstruction of cells which have been injured. It has almost a paralyzing effect upon phagocytosis, because it combines oxygen more firmly with hemoglobin and consequently lessens the general ability of the patient to repair damage that has been done by any sort of microbe. If so much damage can be done in a class of diseases which we know pretty well about, and with a drug which we know pretty well about, little imagination is required for appreciating the effect of self-prescribing in general on the part of the laity.

Such a simple matter as the mere closing of an ordinary cut is a dangerous thing for a layman, as exemplified by the dis-

tressing results which we observe to follow the application of popular materials purchased at a drug store for that purpose. If we close a wound which is not aseptic, and if we do not maintain asepsis, a very small amount of retained serum becomes a culture medium for bacteria in a few hours, and the toxin immediately sets up an inflammation which may be very dangerous, as often observed at our clinics. In any event, closure of the wound by a layman or by a doctor who does not understand the principles involved, will lead to loss of time in the healing process, if nothing worse. Court plaster has killed thousands of people.

A great deal of harm may be done by syndicate letter reports in the newspapers from correspondents who bring forward sensational medical news. A typical instance of this has occurred recently where a feature was made of the cancer cure said to have been discovered by a Doctor Odin of Paris, and published widely in this country. My enterprising friend Doctor Edwin Walker at once went to Paris in order to obtain first-hand knowledge for the benefit of his patients at home. He found Dr. Odin in newly furnished elegant apartments, to which he had recently moved, in one of the best neighborhoods; and with evidence of new prosperity from some source. He was found to be practically unknown in Paris, and was not connected with hospitals or other medical organizations to which responsible men belong. He had published nothing in French medical journals on the subject of the serum treatment of cancer, and had never done any work on lines of research or investigation so far as any of his colleagues knew. He did not have the manner and bearing of a man who was elated over making a great discovery of benefit to mankind, but was particularly desirous of making a business arrangement which would allow him to obtain an income. Some cancer patients whom Dr. Walker examined in the office of Dr. Odin did not

seem to have received any benefit from treatment. The sad part of the visit was the observation of a great heap of letters from America in the doctor's private office from unfortunate sufferers, who in desperation were appealing to what appeared to be the cheapest sort of charlatan. This was all due to the enterprise of an enterprising newspaper correspondent who had sent a syndicate letter to the American newspaper press.

It is somewhat risky for a physician to appear in the newspaper press on purely impersonal matters. A reporter for one of the best of our newspapers not long ago asked if I could state ways in which the poor could obtain medical services of high class. It seemed a perfectly legitimate subject for discussion. I gave him impersonal information, but in the kindness of his heart he added, without my knowledge, a line to the effect that all who were without funds were invited to come to my office. He could not see that this was a grave error, because we cannot ask for cases, even though the patients pay little or nothing at all. The result of this invitation, which I did not even suggest,—in fact carefully avoided suggesting in the interview,—was to subject me to the sort of criticism that would be natural and just unless one were given opportunity to make explanation. We must be more than particular. A doctor cannot afford even to be careless about allowing his name to be used, under present conditions, but the time may come to-morrow perhaps when some society like the New York Academy of Medicine will appoint certain representative men, who are given freedom to speak on various medical topics for the lay press. This would be of immense educational value for the people, if men could be selected who would have the finesse to leave out debatable and personal features when giving information.

One reason why we cannot freely allow publicity of medical

subjects for the purpose of educating the people is because of a fundamental tendency on the part of the public to look for mystery and wonder in the field of healing. This trait is as characteristic of the human species as are the cartilages of selachians. It is undoubtedly founded upon a very deep instinctive desire for health (self-preservation idea acting in accordance with this instinct). Reliance is quickly placed upon either superstition or knowledge, whichever one is most readily available. Superstition being handiest, people not only choose that by preference, but they allow imagination to magnify such right or wrong ideas as they may obtain. The fallibility of testimony concerning the wonders of healing may be observed through all history. In the letters of Saint Francis we find reference to nothing miraculous in his own work, yet there are many books in many languages describing him as a miracle worker. Saint Francis would have worked a real miracle had he persuaded people to accept his definition of a gentleman as "one who excuses every one but himself."

One who is simply suspected of possessing mysterious knowledge, even though he make no such claim, is looked up to with interest and respect. The young man in a white jumper behind the soda water fountain of a drug store is called "Doc," and his advice is asked upon many questions, by people who would not notice him at all were he to wear a brown coat and stand three feet nearer to the centre of the shop. Knowledge of mysterious drugs is supposed to invade him as their odor pervades the atmosphere of the shop.

When reporters for the daily press attend a meeting of bankers there are no scare heads next day relating to Federal reserve measures—the relation of national banks to reserve associations—the right to define the character of paper eligible for discount—rules against transferring or hypothecating shares of capital stock—the disposition of earnings—or other

questions of direct importance in finance. Let these same reporters attend a meeting of a medical society and they will be prone to make startling reports, introducing the feature of wonder, miracle, or mystery, and distorting the facts as presented. I do not mean the reporter who reads this note, but the one whom he knows about. Anything so general as this tendency to look for wonder and miracle in healing must represent the working of some natural law, and it is presumably the response to a deeper feeling (self-preservation feeling) than is the feeling for financial economics. A few editors and reporters take pains to give excellent medical news and information, but they are inhuman—to that extent at least. The harm which proceeds from lay press discussion of medical topics as a rule rests in the fact that wrong ideas in medicine are apt to be promptly put into practice by the people. The public is not competent to judge of the value of medical testimony.

Any newspaper reference to one's personal work is extremely injurious. In my early Bellevue Hospital experience, I once cheerfully gave the reporters all the information they wished about an injured man who was in the hospital at the time. Members of the visiting staff spoke to me paternally and so closely to the point that I never intentionally got into the lay press again with any reference to personal work. It is one of the things which cannot always be avoided however. A man of public importance was taken to the hospital from the street one day suffering from a sudden attack of apoplexy. I trephined at once for the purpose of allowing the blood to escape externally, believing it to be a new and desirable procedure in selected cases in which the area of pressure could be determined. Reporters came to my house that evening to learn about the operation. They were offered good cigars and informed that it would be improper for me to give any

news beyond a mere statement of the general condition of the patient. One of them, however, who was admitted into the office, took out his notebook and pencil, and began to ask questions. I explained to him the reasons why a doctor could not speak about any individual who was under his care, or go into details of an operation which might not be accepted by surgeons after the question had been thoroughly discussed in medical societies. This reporter folded up his notebook obediently, put it back into his pocket along with his pencil, and demurely said he could understand very well why a doctor should not talk for publication on such a subject. He expressed a genuine personal interest in the subject, however, and asked some questions on the way to the door, which I answered directly, forgetting that he might have a concealed memory somewhere about his person. Next morning everything that had been kept out of his note book appeared from his memory in the form of a long personal interview relating to a new operation.

When my description of the trephining operation for apoplexy was published in the newspaper, the editor of the *Medical News,* Dr. Goffe, wrote a scathing editorial on the subject, in a special edition which was being sent out very widely for advertising purposes. Had Dr. Goffe known the circumstances, or known me as he did later, he would not have written that editorial. From the facts which he assumed to be true, I would wholly agree with the main text of his remarks. One reason why I never criticize other men in their absence is because of fear that I may not know the other side of a question, and may not be just. It is such an experience as the one quoted which leads me to reserve judgment as a matter of habit.

On another occasion a whole page in one of the Sunday papers was devoted to an "interview" with three surgeons on

a popular subject. A description of their instruments was illustrated by numerous cuts. I was in Europe at the time, and did not know about being one of the three "interviewed" men. When met with coolness later by a colleague who was an old acquaintance, I asked the reason, and he expressed his surprise at my appearing with personal professional matter in an interview in a Sunday paper. On hunting up the origin of the article it was found that the author of the contribution had made up a whole page of quotations from medical journal writings of the three surgeons and had sold it to the editor as an interview. He was a student at one of the medical colleges who had sought to turn an honest penny in this way.

Comparatively few laymen know where to seek for the right channels for obtaining medical help, and they are apt to accept suggestion from lay advisers. Take, for instance, a case of headache of some chronic or recurrent sort. The patient, through recommendation of friends who have been relieved from headache, may purchase a patent medicine or go to the "favorite prescription doctor," or to an oculist, or to a spa, or to an osteopath, or to a gastro-enterologist, or to a sanitarium. Now all of the friends who gave advice were no doubt relieved from their own personal headaches, because they happened by luck to get to the right man or place. Headache, however, is simply a sign of irritation of those branches of the fifth nerve which supply the investing membranes of the brain. The fifth nerve is connected with the sympathetic nervous system through its four ganglia, and headache is consequently nothing more than a report at headquarters that something is wrong somewhere about the body. Any one of fifty things may cause headache, which is a ringing of the alarm bell in the tower. Methods for removing the cause for one man's headache may have no bearing whatsoever upon headache in another man. The causes may vary from uric acid

in the circulation to an error of refraction,—from hard arteries to a soft liver. It is difficult indeed for the people to find the right physician for guiding them properly in such an ordinary matter as a headache, when the alarm bell is ringing in their towers.

Wonderful tales are told by the people of miracles performed by healers. A simple priest, like Father Ivan of Russia, may obtain great vogue through having miracles ascribed to his healing powers. I remember particularly one tale of his being called to treat a very high church official. A certain Metropolitan when discharging a priest, under conditions of great stress of mind, suddenly became paralyzed in his right arm and was stricken blind. Various medical attendants failed to relieve him, but Father Ivan upon being called cured him promptly of his paralysis and of his blindness. This tale was spread widely in Russia, although an official who was associated with the Metropolitan said in private conversation with one of my friends that the story was untrue. It might just as well have been true as not, for many similar occurrences are recorded. To the alienist such an instance would represent quite an ordinary case of hysterical paralysis and blindness, and a cure through the influence of suggestion would be most commonplace from the point of view of those who are informed. Aside from real healing power through suggestion on the part of a priest like Father Ivan there is also a harmful side. I was told of one young man to whose bedside he was summoned. The mystic priest said to the friends and relatives, "God has called him. He must answer that call." The young man promptly died. My informant did not know the nature of the illness in that particular case, but a powerful influence of suggestion might quickly cause death when coming from such an authoritative source, if the patient were of a susceptible type. The death

of such a patient would have the effect of enhancing the reputation of the prophetic power of Father Ivan, a death which he himself might have brought about. Insane mystics like the monk Heliodorus obtain royal patronage in Russia.

Delusions relate to the time when our focal distance allows us to observe them, rather than to their frequency in fact at any stated time. When reading the history of delusions of people in the past, we exclaim: "Goodness! What simpletons they were to believe in witchcraft and the evil eye!" We do not realize that precisely the same state of mind persists to-day. Even among groups of well educated people it very frequently occurs that some member of the party relates a wonderful tale about some marvellous healer who cures by supernatural powers. We hear much of "personal magnetism that almost blisters," and of remarkable cures from some strange procedure on the part of a most unusual sort of individual. A Summer hotel verandah without such interesting conversation is not readily to be found as yet.

We often wonder why the public press takes up a position antagonistic to vivisection, for instance. A friend at the club who is editor of one of our papers gave me an explanation. He said, "Now, supposing that five thousand cranks buy the paper because of articles against vivisection, and only five hundred people drop the paper because of the articles, don't you see the balance in favor of the counting house?" The proprietor of one periodical which has much to say against vivisection and vaccination, is a great deal of a wag, and thriftily clever. His idea is that by attacking doctors on these matters a great many men become aroused in controversy, and teach the public the real truth because he wakes doctors up by throwing stones at them. He believes himself to be useful, in addition to increasing his circulation, and no doubt is useful on both bases. The good accomplished in the end

by the men who know and who are awakened into speaking, really does offset what seems to be the bad effect of unmerited abuse of doctors. The time is coming when editors can obtain much more sensational matter if they wish by searching among their own advertising columns for really harmful influences.

One editor who is opposed to vaccination and vivisection is, I believe, sincere. He belongs to the double rose class, and is very bright, but cannot make proper use of testimony. His periodical doubtless receives an increased circulation because of its advocacy of ideas which must be kept in a blue bottle out of the sunlight. Men who know that these particular ideas are wrong do not often drop the periodical. I buy it myself for its cleverness, and fanatics buy it for its wrong ideas. Ho! Merry for the counting house!

From the New York Times for February 25, 1908, I cut out this letter as indicating the feeling of one who is filled with kindly sentiment toward animals, but who has not as yet found opportunity perhaps to make a real study of the whole subject of vivisection.

To the Editor of the New York Times:

In my opinion, vivisection is the lowest form of immorality. "Below this there is no depth." The harlot, the thief, the murderer, and the degenerate of any sort may own a sense of human morality and possess their own share of the divine. Not so the vivisector. Vivisection destroys the sense of mercy in the human heart. Therefore it is immoral. It is difficult to believe that any lasting good can come of immorality. To me cruelty is the one unpardonable sin, and cruelty to helpless things is the vulgarest phase of it. The price paid for a discovery in vivisection is too great. I believe that egotism and the desire for celebrity often give the vivisector his impetus. As the undersigned once wrote:

"There are some phases of immorality so dark that men speak of them in whispers or do not speak of them at all.

Vivisection is one of these phases of immorality. No prisons, no death cells, no obscure haunts of vice ever have sheltered beings who have so perfectly achieved the annihilation of the common sense of mercy as the vivisectors have achieved it. All cruelty to helpless things is cowardice. But to my mind the exquisite cowardice of the vivisector is the most perfect thing in immorality that the mind of man can conceive."

MINNIE MADDERN FISKE.

Mrs. Fiske simply expressed a temperament in relation to one side of a case. She is capable of speaking quite as strongly for the child who is spared from diphtheria or from infantile paralysis,—for the mother who is spared from typhoid fever and lives to care for her little flock,—for the soldier who is spared from yellow fever to fight for his country. These people are spared as a result of animal vivisection. We have seen Mrs. Fiske do wonderfully artistic work on the stage in subjects which were quite as opposite as those of vivisection and antivivisection. Were she to study the other side of the case we might be given fully as striking an exhibition of deep human sympathy displayed temperamentally in favor of vivisection and the home.

Vivisection stands for home and the children. Antivivisection stands for Her Excellency the Barrenness de Seulchien. I would not speak of her in any spirit of disrespect. Beautiful characters and women of the finest quality of culture are found in private homes and at the hotels, who are victims of circumstances, and who make the best employment of useful lives. The Barrenness is often enough someone who has been the victim of an accident, quite as well as someone who has reached cultural limitations, and having lost the breeding instinct is devoted to a display of the delightful characteristics of higher civilization. In this group, however, we find the larger number of antivivisectionists.

Comparatively few mothers or fathers are to be found among the antivivisectionists. There are probably no large stock raisers among them, because the cruelty that herds of animals formerly suffered with various infectious diseases has been so decreased through the results of vivisection, that practical animal lovers know very well what suffering has been spared their charges. Vivisection stands for home, the children and the farm. Antivivisection stands for pet animals which bring much cheer to the childless city apartment. The leader among the antivivisectionists is at present Miss Lind-af-Hageby, whose false statements cost Coleridge twenty-five thousand dollars in his suit with Bayliss. This year she made an attempt at refuting the charge that her antivivisection propaganda had been carried on by a systematic campaign of falsehood. A prompt verdict was rendered against her in court. It is fortunate that this type of salaried mind is not represented by the vivisectionists, who carry their data before committees of legislative bodies. Such committees are very apt to contain members with legal training, who are familiar with methods for securing the facts in a case, and who know the course and meaning of emotional movement.

It is interesting to observe the way in which the public press will make up a popular diagnosis for purposes of convenience, and doctors then follow suit. Not long ago people died largely of heart failure in the public press. Beginning to weary of this, the editors next had people dying of ptomaine poisoning. After a multitude had been swept away by ptomaine poisoning, we now have arrived at the popular diagnosis of "acute indigestion."

No one can prognosticate what the next lay press diagnosis will be. This is really the fault of the doctors. Some one or two men carelessly quoted a few times, may establish a diagnosis for the lay press to employ. "Heart failure" covered

an enormous range of diseases. "Ptomaine poisoning" and "acute indigestion," however, according to my observation are rather closely limited to appendicitis, ulcer of the stomach and gall-stones, although there would of course be the usual proportion of strangulated hernias, adhesion angulations, hard coronary arteries and various conditions sending a reflex impulse to the gastric ganglia. Once in a long while, to be sure, a real case of ptomaine poisoning would be included. "Acute indigestion," however, can never be a real diagnosis, as it is only a sign of something else, for which a diagnosis is in order.

The ludicrousness of popular diagnoses is equalled by those which are occasionally sent in with death certificates, and the following extracts from some which were sent into the Wisconsin State Board of Health recently, found in the reports of L. W. Hotchcroft, chief statistician, are quoted:

"A mother 'died in infancy.' "

"Went to bed feeling well, but woke up dead."

"Died suddenly at the age of 103. To this time he bid fair to reach a ripe old age."

"Do not know the cause of death, but patient fully recovered from last illness."

"Deceased had never been fatally ill."

"Died suddenly, nothing serious."

"Deceased died from blood-poison, caused by a broken ankle, which is remarkable, as the automobile struck him between the lamp and the radiator."

The idea of property being held in greater value than human life, by inherent instinct of the public, is shown in statistics collected by Rittenhouse of the Equitable Life Assurance Company. He shows that in the year 1911, in fifty American cities with an annual death list of 117,000 from preventible diseases, people spent an average of thirty cents per capita for

preventing life waste and $1.63 per capita for preventing fire waste. An inherent instinct demonstrated in this way is to be our guide, rather than any sentimental idea that we hold life to be of greater value than property. Life apparently is not so valuable according to nature's plan. Property is worth the most for the reason that honey is worth more than bees. The death rate from degenerative diseases of the heart, blood vessels, and kidneys, has increased more than 100 per cent. in this country since 1880 (in the state of New Jersey 119 per cent., in the city of Chicago 159 per cent., New Orleans 169 per cent.). Death from external cancer alone has increased 52 per cent. in ten years according to the Rittenhouse statistics. No one will really fear overpopulation if he knows much about the parallel history of fruit orchards. Higher and constantly higher grades of cultivation and attention are required every year in order to hold fast to what we already have among men and trees. Cities are great orchards in which man disturbs the balances of nature in the same way as he does when setting out peach orchards,—by giving all of the enemies of the peach opportunity to multiply under conditions of convenient and abundant food supply.

An instance showing that nature fundamentally cares more for property than for man is given by our officials in Washington in connection with pure food laws, their decisions in cases of doubt (and in other cases) have been in favor of capital rather than in favor of the public health. Various "cures" for alcoholism lead to fortunes on the part of the proprietors because these "alcohol cures" contain alcohol sold at fancy prices. "Coffee cures" contain coffee sold at a fancy price. "Opium cures" contain opium sold at a fancy price. This gives example of the satanic advantage which is taken by people of an uncaptured criminal class who prey upon their fellow men, making fortunes for their reward.

Dr. Stephen Smith brought the health board of New York into possession of powers which exceed those of any health board in the world. Dr. Hermann M. Biggs later put practical municipal sanitation upon a sound scientific basis. These things were not done by Dr. Smith and Dr. Biggs as politicians but as altruists who were recognized as such trustingly by the people.

The death rate in rural New York has now become considerably higher than the rate in New York City and the health committee of the State Grange has recommended the establishment of a division of rural hygiene in the New York City Department of Health.

When the Department of Agriculture was proposed twenty-five years ago precisely the same arguments were raised against it as are now raised against a Federal Department of Health, with this difference, that opposition did not come from powerful moneyed interests which were inimical to agriculture. Rights of the state were said to be involved. The Government was said to be taking up a subject that did not belong to it, and making an excuse for political expenditure, something of which people should not approve. At the present time the producers of our land realize the value of the vast machinery of usefulness which is conducted at Washington in the interests of agriculture. To-morrow the central government will give to children the degree of attention which it has already in the course of civilization directed toward pigs. We must always keep in mind, however, the fundamental fact that property is held instinctively to be more valuable than human life.

CHAPTER V

Every ambitious man has been impressed by certain lessons which have served to guide him through life. A very early lesson occurred on one of my first days in New York City. I wanted to cross Broadway at Fulton Street, but waited a long time before there appeared to be any sort of chance to get past the crowding vehicles. While I was waiting another young man came along with a newspaper in his hand, started straight across the street behind one team, followed a long way down to get in front of another one, and then a long way back to escape another. He made several extensive zig-zags before arriving upon the other side, but he got there while I was doing nothing. It occurred to me that all sorts of getting through life depend largely upon disregard of the expenditure of energy required for getting to any one objective point so long as a fellow gets there.

Another one of the things which impressed me greatly and served as a guiding influence was when a man leaned against a loaded canal boat with his feet against the dock. From his actions I judged that he knew what he was about, and it was not many minutes before the boat began to swing clear from the dock. The fact that anything so small as a man could overcome the inertia of anything so large as that great boat by simple calm persistence, while the man was quietly smoking his pipe, made me feel that one could accomplish almost any-

thing that he desired, in overcoming the inertia of his profession, by simply making pressure at any one new point persistently until the whole profession moved. It has been necessary, however, to study many ways for keeping up the pressure. Sometimes it has been through choice of diction which might be called sensational,—something of which I would not approve for a moment in the speaking or writing of anyone else,—particularly if his views were different from mine.

Trained in accurate method and precise statement by teachers at college and in the medical school, I found myself (when launched into the profession) making new adaptation to conditions, by presenting subjects in a way that would take hold,—when speaking or writing. That seemed to be the essential thing, although quite different from anything which had been inculcated by revered teachers. The profession was not then ready for the clear calm science that is demanded of speakers and writers to-day. It happened to be the transition period of emergence of the profession into new doctrines of antisepsis and asepsis. Many other brand new subjects, hissing hot from the laboratory and clinic, required to be hammered quickly into the rivet holes of rapidly up-going professional thought at that time. Four of us in particular who chose similar methods of presentation of subjects at national society meetings, were counted upon to keep the surgical section awake, and the remark was commonly made that "We cannot have a good section meeting unless M., P., D., and M. are there." Dear old P. and I suffered from the results of our method of advancing ideas, because we were not facile enough at protecting ourselves against the violent personal criticism which was hurled at us in return. D. and M. were much more expert at fighting for their own legitimate rights, and became teachers who later occupied more important posi-

tions than were attained by P. or by me, neither one of us being good at a battle for anything excepting principles. The all-around fighting capacities of D. and M. always excited my deepest admiration, and they won out in the presence of that conservative element in the profession which has always approved of more deliberate and slower methods of establishing new ideas. Pretty well up to the later eighties it was not unusual for readers of papers at medical society meetings to assume a disarming air of modesty in their opening words, and later a manner of invincible authority as the subject deepened. Meanwhile the audience became drowsy with trustful confidence in its own opinions. Good men in the audience occasionally slept. When they awakened at the end of the reading of a paper, it was like suddenly awakening when a clock stops. They congratulated and complimented the reader of the paper in his presence, but after the meeting was over and the reader absent they proceeded to clip him out of their frames of thought. One very early determination of mine was to keep men in audiences awake at least, by open controversy in their presence. Another early determination was to bestow little of compliment upon any paper which implied its own inherent compliment; weak points only were to call for discussion. After a meeting had adjourned my plan was always to stand up for the absent man and discourage any adverse criticism when he was not present to make response. This plan of procedure was more or less revolutionary and different from established custom at that time. A great change has lately come over the profession. Speakers and writers who now engage the most earnest and eager attention of colleagues are the ones who can present subjects in that spirit which has made pure mathematics the symbol and the sum of all that is farthest-reaching, most definite, most fundamental, and best corroborated among intellectual

activities. From the mountain-top of a higher criticism doctors now gaze in admiration over the far flung valley of a new idea, but instead of becoming enraptured with its beauty they analytically ask what grows there.

Another feature of my habits of work is perhaps not a desirable one for young men to follow. It represents an individual characteristic, however, and so long as there is plenty of work to be done along lines of least resistance I cannot take time now to mark out other and better methods. This is a tendency to drop any given line of research as soon as a result has been achieved, but before the subject has been well rounded out with data. People commonly expect a man to take charge of his own ideas and not bother the world with them until the world can obtain his completed product. In my professional work each new subject has developed into such wonderful proportions that the greatest degree of satisfaction has been found in simply following a line of thought to some conclusion, publishing the conclusion and then allowing others to look after details of completing the product. This happy-go-lucky spirit is not commendable excepting in some of its compensations, but it allows one to gather pollen from widely separated flowers and to make something good out of the mixture. My beloved friend, Dr. Andrew D. White, holds that the highest function of an educator, or of one who passes as such, is to set men at thinking. People then work things out in their own way along lines which have been shown by an innovator. When physicians say critically that I should round out and complete any new subject which is taken up, the response is that my function ends with setting them at thinking. Their better minds will produce better end-results than mine would have produced.

The extent to which my work had been impressionistic rather than classifiable in a scientific way was not apparent

until some friends proposed to send a record of data to the Nobel Committee. This was done by Dr. R. in the year 1907. Although my work might be reckoned in terms of influence relating to the saving of lives, it seemed mere play when compared with the work that had been done by other American surgeons. The prize which went to Dr. Gullstrand some time later indicates the sort of work of which the Nobel Committee would really approve. Work like that of Dr. Gullstrand could be definitely classified. He is said by ophthalmologists to have advanced the science of refraction very considerably with his work on the dioptrics of the eye, which constitutes one of the volumes of Tigersted's Cyclopedia of Physiological Methods. His results could be stated in almost mathematical terms, and they made a contrast with my diffuse work which had been aimed toward establishment of the principles of the fourth era in surgery for instance. If one has devoted years to the accumulation of backing for a single phrase which would result in the saving of lives the matter could not be stated in a convincing way for a committee. The method of measurement of a certain type of corneal refraction, however, may be shown graphically upon a chart.

It is a difficult matter for any prize committee to judge of the effects of work which has not been reduced to definite data. I have served frequently enough on committees to know the value of careful arrangement of accurate statement which leaves little to the imagination.

In our profession it becomes a matter of necessity for investigators to devote close and concentrated attention to any new subject for awhile in order to comprehend all of its various features. It is somewhat similar to the process followed by the lawyer who is preparing a brief. The lawyer has authorities whose quotations may be assembled rather definitely and rapidly upon any given point. In medicine how-

ever, one must usually try out a combination of ideas of authorities together with his own ideas for a longer period of time than is required by the lawyer for making a point. Hence the charge is often made against the investigating doctor, that he is riding a hobby. The mental process which subjects him to criticism is similar to that which is considered to be commendable for a lawyer. An inmate of an insane asylum was observed one day sitting astride of a saw horse. A visitor asked him what he was doing, and the reply was that he was riding a hobby horse. The visitor asked him the difference between a hobby horse and a real horse, to which he replied that one could get off from a real horse. Now in our work perhaps the most desirable thing is a sort of hobby method which may be described by a mule word, made up of the old French *hobi* and the Latin *equus*. An hobequs then is the thing we are to ride persistently until all its paces have been shown. We then dismount and vault into the saddle of another one. The psychologist would describe the hobequs as a phenomenon of attention concentrated upon one subject without regard for relative values until the subject has been mastered. One doctor is always afraid that such a thing ridden by another doctor may turn out to be a runaway. Such fears are proper and well grounded upon experience.

An hobequs might be termed a trained variety of mono-ideism. Mono-ideism is born when for any reason a subject comes so clearly into consciousness that side lights are reflected away from it. This represents the wild form. Dr. Shaw says that the wild form is ruthless in the pursuit of its ends. All considerations of fairness, of propriety, of regard for the feelings of others are ignored, and toleration is a forgotten word. Incoming ideas must be made to conform to the particular dominant one, and if they cannot be made to harmonize they must be scouted as irrelevant. Mono-ideism apart from

the motive which guides it automatically as an obsession may allow a man to remain quite normal in his other relations to the people about him. Examples of the wild form are to be observed daily among politicians, economists, warriors and artists.

The cultivated form of mono-ideism is like cultivated varieties of almost anything, larger and more useful for man's purposes. When well trained as an hobequs it becomes a fine plagiarist and appropriates anything which may serve for purposes of nutrition. Under the influence of scientific method it discards nothing as being irrelevant until accurate test has been made. It becomes docile, and allows a man to dismount quietly at any time, thereby averting the dangers which belong to the violent bucking of an irritated wild mono-ideism.

My first hobequs belonged wholly to somebody else. While I was on the house-staff at Bellevue Hospital (1883-1884) Dr. Lange and Dr. Stephen Smith, of the visiting staff, were seriously teaching the new antiseptic surgery. At the New York Hospital, Dr. Weir first and then Dr. Bull had adopted the theories and were carrying them into practice, but aside from these leaders, and younger men who were assisting them, there were few men in New York who fully understood the principles that were involved. (Perhaps there were more surgeons who understood the principles than there were surgeons who knew how to carry them into practice.) Immediately upon completing my term of service at Bellevue Hospital I ran over to Europe to see the founder of antiseptic surgery—Mr. Lister, and also Mr. Cheyne and the German surgeons who were advancing the subject at that time. Upon my return, a year later, finding bitter controversy still going on, I sat down to a task of duty and in a few days had completed the material for a little book entitled "How We Treat Wounds To-day,"

which represented new antiseptic methods and was opposed to the common methods of procedure of established surgery at that time. Before offering the manuscript for publication a medical editor of note, Dr. Shrady, was asked if he would kindly make comments. He advised me in a fatherly way not to publish the book, and said that while its material would be of service, the manner of presentation would hurt me personally with the sort of men upon whom a young man was to depend for advancement in professional position. (He was quite right about that.) The manuscript was then taken to Dr. Weir, who said: "Publish the book but be prepared to take the consequences of your show of syllogistic fists." The book was published by the Putnams and went to every part of America, —in fact to every corner of the world. It was promptly adopted by the Surgeon-General of the United States Army.

Whatever I have done has almost constantly been against advice of men who were consulted, but their attitude has been generally friendly, and merely expressed the idea that they did not wish to see me harmed. When talking with men of various occupations in business and in the professions, this appears to be such a common experience that one would arrive naturally enough at the conclusion that the right way to do things is one's own way, and a man is then to stand the consequences,— always good-naturedly.

When this book on wound treatment was published in 1885, many surgeons who wished to be most kind said that antiseptic surgery was fanciful in theory and impracticable in application. The ones who did not wish to be friendly said that all of us who advocated the system were charlatans or quacks, trying to make capital out of a theory that was captivating to men with little practical sense. A few years later there was not only universal acceptance of the antiseptic theory, but it was superseded by aseptic surgery, which included

more fully the idea of keeping bacteria out of wounds rather than destroying them once they were in. At the present day young men in the profession cannot realize that the small handful of us who fought for antisepsis and asepsis in New York in the early eighties were subjected to violent attack. It represented nature's method for preventing too rapid progress. The history of warfare for the establishment of new subjects like those of antisepsis and asepsis must be represented many times in days that are to come. Otherwise medicine would make progress beyond all other sciences. It is a demonstration of the omnipotence of the balance of nature. Few men realize this fundamental feature of omnipotence of the balance of nature as applied to progress in the sciences, although naturalists are quite familiar with the subject in its relation to the contests belonging to organic life.

A few of the typical press notices called forth by the publication of my first little book are here quoted to show how the subject was looked upon at that time.

1. "This book is rich in bombast, but destitute of any practical value." *Medical Bulletin,* November, 1886.

2. "The book is so thoroughly practical that it must be commended to those who wish to acquire an exact knowledge of the details of antiseptic treatment."—*Boston Medical and Surgical Journal,* 1886.

3. "This beyond doubt is as contemptible a book as was ever written for medical men. . . . The style to be expected from an ardent partisan with little knowledge and bad taste." —*Medical Herald,* November, 1886.

4. "Mais ce rapide apercu ne peut donner qu'une idée fort insuffisante de ce precieux petit traité, et nous ne saurions trop en recommander la lecture." *Revue de Chirurgie,* December 10, 1886.

5. "A prominent example of superlatively bad style and

sophistical reasoning." *Southern Practitioner,* December, 1886.

6. "The plan of the volume is capital. Every page abounds in practical hints from an evidently practical surgeon." *London Medical Press and Circular,* June 30, 1886.

These press notices represent pretty well the two-sided attitude of the profession toward everything that I have ever done, and they explain very well why admission to the University Club or to the Century Association was not permitted. Inimical attitude on the part of colleagues is naturally distressing to any man of friendly disposition, and it would have been disturbing were it not for the fact that I recognized the working of a natural law, and knew that every one of the adversaries was having or had had very much the same sort of experience himself. A young man must prepare to have precisely this sort of experience and to place any feelings in the matter to the profit and loss account at the beginning of practice, so that he may be free to go ahead in his own way. Almost any successful lawyer, engineer, banker, actor, merchant, publisher, teacher, clergyman, editor, artist or legislator would be enabled to present about the same sort of history. My purpose in detailing personal data in cameo form, relates to a couple of chief objects. The first of these is an attempt at cheering up young men by showing them what is to be charged to profit and loss account if they desire to become good natured free lances. The second object in view is the idea of persuading some lawyer, engineer, banker, actor, merchant, publisher, teacher, clergyman, editor, artist or legislator to record his joys and jolts in a To-morrow's Topics of his own. Each one of these men may tell his publisher that one copy has been ordered by me in advance.

Success in almost any occupation is such a purely personal

matter that we seldom hear of even a son following in his father's footsteps, although a son of equally good general mentality may obtain the enormous advantage of prestige and parental advice.

We must remember that none of the editors who made adverse comments upon the book did so from any mean or personal motive, nor were the men who would have blackballed me at clubs or associations moved by any small objections. They were all representative men of established position which was merited by their work, and who felt that my work was a menace to the traditions of their beloved profession. At various times friends in various social clubs asked me to become a member, but there seemed to be no time for making use of the clubs in those days. The tendency was to retire deeper and more deeply into one's work, and to miss the very delightful features of social life. Old college friends were allowed to propose my name as that of a candidate for membership in the University Club. It had not occurred to me that efforts at developing new methods of work would have any bearing in this matter, because the club was the one place in which a man was expected to get entirely away from shop, and into large and generous human views. When my name came up before the committee on admissions, one doctor on looking over the list said, "Oh, Ah! there's one name I'll swat." Other members of the committee who were personal friends of mine asked for the reasons. The reply was, "Oh, he is always in a row with the profession." My friends on the committee being laymen and not understanding what the nature of the row might be did not think to ask if it referred to the setting of any standards. They were obliged to let the matter drop because of this member's assurance that several black balls from colleagues might be counted upon. He was quite right about it. I had not realized previously that men

feel personally injured when one forces them to change their points of view, having trained myself not to take offense at anyone who differed with me. It was my supposition that other men had trained themselves in very much the same way. That was a misconception. Subsequently I became a member of the Alpha Delta Phi Club in which old chums were not interested in professional questions,—and also joined other clubs like my favorite Camp Fire Club, which related to special interests. I had so frequently been asked to join the Century Association that notwithstanding the history of experience with the University Club, Centurians planned to have my name proposed for their membership list. One of them, Dr. D., who had twice served upon the committee of admissions, volunteered to take the matter in charge. He was a member of the medical profession, and knowing both the club ways and professional ways, believed that he could persuade the "chess room crowd" to see that my name was not blackballed. After we had discussed various features his suggestion was that the proposal should be made by a surgeon. Dr. B., who was very popular in professional circles in New York, was chosen for this part. For a seconder we chose a favorite man of letters, Rev. Dr. Van D. My adviser suggested that only five letters be written to the committee by other friends, but that the men to write these letters should be representative men in different callings outside of medicine. This entire list—proposer, seconder, and five members who were to write letters—were all from our mutual friendship list, two of them university presidents who were particularly popular. My adviser was then given the names of four men in the Association who it was believed would oppose my election. After making inquiries he reported that we were wrong about two of them, and they would favor my admission. Two others would not only oppose my election but

one of them would go far out of his way to see that I was not admitted. He and I happened at that time to be engaged in a special field of new work and this member's views were different from mine all along the line. He felt keenly that my presence anywhere was a menace to the welfare of the community and he was perfectly conscientious in his efforts at keeping me out of any social club, or any other field of activity in which he could have a voice. As a man of very high position, which was merited through his accomplishments, his opinion naturally carried great weight with a large circle of followers. When my name came up before the Century Association committee, having been rushed ahead of a number of others on the waiting list, the committee decided that my election would be out of the question. It was so desirable however to become a member of some first rank social club, that one was again selected. The committee on admissions watched for an opportunity when my name would be least likely to be black-balled, and this effort was successful. A man should really get in line for such club membership before he has attempted to do much. As a matter of fact it would be still better if committees on admission were to make analysis of the exact nature of the opposition to men whose names are proposed, but this is not always the custom at the present time in American clubs, nor even in the older established European clubs. When one has disturbed certain members to such a point that they wish to black-ball him it is generally considered that he is likely to disturb a great many other members when elected to membership in the club. As a result of the present system some men who are "not accustomed to being defeated" lay plans which eventually place them in their chosen club "if they have to fight for it." Others who are much occupied with many matters, fail to take the necessary steps. The result is a tendency to have in the exclusive social clubs an element that

on the whole is most agreeable but not the most tolerant of active men whose views arouse controversy.

When the question of my candidacy for membership in the American Surgical Association had been brought up, some of the members said to me afterward: "We wanted you in, old boy,—and your sponsors were loyal,—but two of the other New York men made such determined opposition that we could not overcome their influence. You understand! Come up again later." As a matter of fact no good opportunity has offered itself. Hardly a year has passed without my noting that colleagues were grouping themselves comfortably about tradition,—following a sort of periodic law. It has seemed necessary to ask them to arrange their atoms in form for undergoing continued mitosis, instead of becoming fixed in crystalline tradition form.

My book "Lectures on Appendicitis and Notes on Other Subjects" (published in 1895) included the history of incidents belonging to a very long hobequs ride. Shortly after Fitz of Boston had published his paper on the subject of appendicitis, in 1886, surgeons began to give attention to better diagnosis in cases that had formerly passed as peritonitis, perityphlitis, and in fact under a long list of misleading or incomplete diagnoses which need not be enumerated here. In the early nineties operating for appendicitis was well under way, and the methods belonging to the third or pathologic era of surgery were naturally the ones which were applied, as this era was then in the height of its glory. The principles of this era happened to be particularly unsuited for many cases of appendicitis, and it was a fact that the statistics of cases treated surgically were very little better than the statistics of cases treated without operation. At one time I collected the official reports from a number of typical hospitals, and found that the deaths after operation for appendicitis ran

from 15 to 27 per cent., depending somewhat upon the class of cases treated at different hospitals, but more particularly upon the methods which were employed by individual surgeons. A rather large proportion of cases of infective appendicitis were in advanced stages when they were sent to the hospitals at that time. Appendicitis in all of its varieties and stages is now recognized freely, and the sentiment in regard to operation has become entirely changed. Too many operations are just now being done under that diagnosis.

It was customary according to the principles of the third era, for surgeons to treat cases of appendicitis in which there was infection of the peritoneum to various degrees, by making long incisions which caused shock. They made multiple incisions for purposes of drainage, which also caused shock. The extensive and elaborate use of germicides and antiseptics and various mechanical means for removing products of infection were all harmful. This work was often done with painfully conscientious detail,—the patients suffering meanwhile in consequence. At that time gauze packing and gauze drains were used in great quantity, and the mere presence of such material in the abdominal cavity prevented the patient from quickly summoning his own resistance factors. In addition, iodoform gauze was commonly chosen, and this had a special death-rate of its own because of insidious iodoform poisoning,—the symptoms of which are so closely those of sepsis that deaths were often set down to the account of sepsis when really due to poisoning by iodoform.

It was observed that patients who had been operated upon through short incisions and with moderate degree of handling of viscera,—(avoidance of features which cause shock), did very much better than patients who were subjected to the customary operative procedures of the day. Beside that they did not have post-operative hernia excepting

for some special reason. Beginning from this observation it was possible to work step by step toward the position of employing short single incisions and avoidance of gauze packing or the use of extensive drainage apparatus, even when wide infection was present. Examination of purulent material in these cases showed it to be frequently sterile, because bacteria were at work in the tissues rather than in large collections of fluid, no matter how malodorous the latter might be. It was observed that when in the course of separation of extensive adhesions purulent material was spread over the normal peritoneum in the vicinity, it did not excite peritonitis, for the reason that this fluid commonly contained comparatively few bacteria. In addition, the peritoneum in the vicinity had called out a protective hyperleucocytosis. It seemed best not even to take the trouble to remove purulent material that had become spread over the normal peritoneum in the vicinity. This avoided the shock which commonly went with elaborate protective resources. As a result of work based upon such observation I was enabled to present at the Academy of Medicine in 1896 statistics of 100 consecutive unselected appendicitis cases with a death-rate of 2 per cent., and the report was shortly afterward published in my treatise on the subject.

At the time when this report was made most of the leading surgeons in New York assembled for the purpose of combating my views. They made a special effort to be present at the meeting, believing that my influence must be strongly opposed. Some of the speakers who discussed the paper accepted the report as presented. One or two who were present intimated very politely that a selection of cases had been made for statistical purposes, and one of the most prominent surgeons in this field of work complimented me upon my statistics, placing an emphasis upon the word "statistics" which left no doubt as to his meaning. The chairman

of the meeting who was privileged to say the last word by virtue of his position expressed the view that, in spite of my statistics the methods were dangerous, contrary to established principles, and not to be recommended. Shortly afterward, at a meeting of the American Medical Association, in Denver, a Philadelphia surgeon of renown who was candidate for the presidency of the Association, and who became president later, said in open meeting that my statistics were not to be taken seriously by the profession, as they represented the impossible, and no one could do 100 abdominal operations of any sort with a mortality rate as low as 2 per cent. (Since that time better statistics than mine have been obtained by many other surgeons, and the principles have become generally accepted and improved upon by later surgeons.) At that time this effort to serve the profession by bringing forward a successful new method of work caused me an immense loss of prestige and cut down my practice very distinctly. Such must commonly be the experience of an innovator, and the younger men are to remember not to anticipate much personal advantage when doing work which is not along established lines of procedure. They must expect on the other hand, to suffer actual loss. This loss may be disregarded for the compensating satisfaction of knowing that thousands of lives may be saved.

When first advocating the employment of short incisions and the avoidance of shocking drainage devices, personal friends among the laity who knew of the effects upon my practice, came with kindly advice to change my position. They had learned in conversation with doctors how injurious it was. One surgeon, whom I did not know personally, felt that the amenities of the situation made it proper for him to publish in the *Medical Record* of December 12, 1896, a statement that "such fanciful statistics meant selection of cases" and that "operation must have been refused in the

class of cases really needing the surgeon's help." He wrote that "such figures are vainglorious cheats as attests of comparative skill." There is no way in which one can malign a surgeon more than by stating that he has refused to help people needing his skill, for the purpose of making a report favorable to himself. While such an imputation is sometimes heard, my confidence in our profession is such that I believe very few surgeons of standing have ever made any such selection of cases for such purpose. As a matter of fact my list consisted of a consecutive series of all the appendicitis cases that I had seen during the period covered by the statistics. No patient had been refused operation. The presentation of the report had not been made with any thought of describing superior skill, but rather for the purpose of showing surgeons how they might be enabled to make even better reports. To have such a presentation taken in personal bearing would have been disheartening for men of some temperaments. In none of my work has there ever been a feeling of wish for personal credit. I have always seemed to myself to be like an outside disembodied agent that was pressing into action better men who would carry forward the needed reforms.

The *Medical Record* article placed a distinct obstacle in the way of acceptance of the principles involved, and reference was made to it in a way which carried unmistakable meaning by writers and speakers of that time. It was generally assumed that any one who would publish such a statement as that which appeared in the *Medical Record* of December 12th, must have had some incriminating facts at his disposal, or he would not have dared to publish his statement. The writer of the letter had no such facts, and he was simply quoting the ordinary hearsay remarks that go the rounds when men are trying to escape from an uncomfortable situation.

Shortly after this, in a published article upon the subject, I happened to make use of a phrase which captured attention and went around the world. It was the heading of an article entitled "The Inch-and-a-half Incision and the Week-and-a-half Confinement for Appendicitis Cases." The week-and-a-half part of the title was not due to any bright thought on my part, but belonged to our house surgeon, Dr. Oppenhimer. When explaining to the class one day that the inch-and-a-half incision gave satisfactory results in a good proportion of our cases of appendicitis which were not advanced in acute complications, and that patients were obliged to stay in bed only ten days subsequently, the house surgeon whispered in my ear —"Ten days is a week and a half." I then said, "Oh, yes!" and to the class—"The inch-and-a-half incision results in only a week and a half of confinement." That form of statement immediately led the class to give evidence in a way with which every teacher is familiar, and the combination was employed for the title of my next published article on the subject. It was at once taken up by medical journals not only in America, but in foreign countries, and set men at considering if they also did not possess a sufficient degree of skill for following out this idea. For purposes of amusement some of the members of the class subsequently added "an instrument and a half" to the formula, because I used very few instruments. Still later, one of my patients who had paid what he considered to be a large fee, suggested to a surgeon who had repeated the formula in his presence that I ought to add "a dollar and a half." These four halves happened to strike the tuning fork of a sense of humor in the profession and did more to change the prevailing mode of thought upon the subject than any series of serious scientific reports which might have been made. The quotation was made in St. Petersburg, Sydney, Tokio, Buenos Ayres, and San Francisco when doctors wanted to laugh after dinner.

Another expression which I employed in connection with unusually long incisions, "the ghastly gash," likewise happened to start agoing a series of vibrations which were effective over long distances. At that time it was called "alliterative sensationalism" and brought out much unfavorable criticism on that basis. The expression seemed to remain however in the minds of surgeons. It was repeated frequently in sentences of ridicule but had a marked influence in accomplishing its object. As a phrase it carried a hook which exerted determining influence upon the actions of men who tried to shake it loose.

One objection to the short incision was that it required a degree of skill which many men did not know they really possessed until a little experimenting had been done. Surgeons were divided into two camps—those who objected to the introduction of technical difficulties, and the ones who sought opportunity to exercise their own best degree of skill. For that matter, it is not best to persuade men who prefer easy work to engage in more difficult work. Such work would be badly done by a man who is forced by his conscience to attempt the exercise of a degree of skill for which he is not equipped.

A Chicago surgeon of national reputation came on to New York to have a short incision appendicitis operation at the time when the controversy was most bitter. He was out of bed in about a week, and two or three days later happened to be calling upon a New York surgeon. Saying nothing of the operation which he had recently undergone he brought up the question of appendicitis in general, and his friend said: "You know there is one d——d fool here in New York—I can't think of his name just now—who says that he can operate through an inch and a half incision and let the patient get out of bed in a week. I keep mine in bed for more than a month."

To this the Chicago surgeon made no response, but highly amused told me about it an hour or so later. He said that he could feel his scar blush, but otherwise his entire equanimity was retained.

While earnestly engaged in preaching against long incisions, multiple incisions, and gauze packing in appendix work I was often taunted good-naturedly by men of prominence. On one occasion, at an association meeting in the South, two surgeons while passing my seat asked if any invitation had been given me to go over to the hospital and show short-incision work. My reply was in the negative, and they laughingly said: "We have been invited to go over and operate, and we are going to take plenty of room and put in lots of gauze." At this time I frequently heard of cases that had been headed in my direction and that naturally would have been mine, but that were turned aside. The patients were informed that peculiar things would be done to them, on principles that were not recognized by the profession. Sometimes physicians told me that they could not give me their cases because it subjected them to so much criticism. Many objections to the short incision idea were brought forward by surgeons who quoted cases in which that method would clearly be inacceptable. My answer was, "Make a salt mackerel incision a foot long if necessary, but allow patients to escape with the mildest attack of surgery which your skill can provide for them." That is still my answer to-day.

All sorts of odd experiences intervened by fate to interfere for awhile with the short incision propaganda. When the question was hottest and needing timely blows to weld the principles into shape I had arranged to meet several opponents at Moscow. Two weeks had been allowed for getting there from Halifax, but the ice drifted in upon my schooner on the Labrador coast and kept me locked up until after the Mos-

cow meeting at which my opponents were present, and had their say.

Insistence upon prompt operation without argument in cases of acute appendicitis did me much harm in the early days of interest in this subject. It was assumed that a man so radical would wish to carry the same radical attitude into other kinds of operative work. As a matter of fact there are few men who are more fond of calling consultants generally and in getting together all available information relating to a given case. Cases of acute infective appendicitis however are always outside of the limitations of judgment. They are always outside of the limitations of prognosis. In that class of cases I insisted upon the rule to "operate as soon as the diagnosis is made." Of late years other surgeons have told me of their being the first to lay down that rule, but during the days when it brought little beside discredit there was hardly anyone else whom "it sounded like." When a doctor has established an idea and has led other doctors to think they did it themselves, his function is ended, and his mission done. Nothing but vanity prompts him to ask for recognition in the profession. In business he has a right to ask for recognition. That is one of the distinguishing features between a profession and a business.

When in the course of diagnostic work I developed a method for palpation of the appendix, and published a report upon the subject, one of the most popular medical consultants in New York said that the normal appendix could not be palpated by anybody, and he looked upon one who made that claim as being presumptuous. He was told—perhaps a bit impatiently,—that he had no right to make a diagnosis or express an opinion when the question of appendicitis came up unless he was prepared to palpate a normal appendix in the average patient. No one can appreciate the far-reaching

influence of a popular consultant in a city when he honestly holds that one who is developing some new point is making fanciful claims in regard to it. At the present time it is probable that the majority of consultants in this country can palpate a normal appendix in the average patient. It is simply a matter of having a method which makes success possible, and then developing a tactile sense when following the rules of the method. The statement that palpation of the normal appendix should be an accomplishment of every diagnostician was not harmful for so very many years, because there were too many members of the class at College who observed the results of palpation as demonstrated in the operation which immediately followed.

A man with no family or families dependent upon him for support can much more heartily carry forward any new doctrine. After all it is probable that doctors have an easier time than clergymen, who are often not paid promptly by their churches, who are paid low salaries, and upon whom very extensive demands are made by unreasoning people. Even their teaching is at the mercy of their leading parishioners, and it seems probable that the whole question resolves itself into one of success only for those who are by nature properly adapted for their work anyway. One can hardly conceive of a man in the medical profession or in the clerical profession who could remain in that profession guided by any hope of reward beyond the reward of knowing that he was accomplishing his ideals in one way or another. The clergyman can seldom maintain his ideals of honesty by paying bills within a reasonable time, if the church does not pay him. He is always having trouble with the choir. Gospel for one of his leading parishioners is heresy for another leading parishioner, and his sympathy is most demanded by the neurasthenic who deserves it least. He has to give up many social pleasures which are

quite innocent in order to conform to the ideas of some of his congregation. There is less of candor between the parish and the clergyman than between the head and the lesser officials in commercial business. The business man however has still more trouble than the clergyman, and some of the most learned of lawyers earn only a few dollars per day in the offices of more successful lawyers who are altogether too busy with large cases to find time for becoming learned. A surgeon who can make a fair living and at the same time be useful to the public occupies an enviable position, no matter if his trials are the greatest trials that he happens to know about.

One of the most important features occurring in my work was perhaps the classification of appendicitis into four separate and distinct types.

First, (the commonest form) an irritative lesion,—not infective, belonging to normal involution of the appendix, with fibroid degeneration which incidentally includes sensory nerve filaments engaged in hyperplastic connective tissue. This was called *protective appendicitis* because the irritation calls out local hyperleucocytosis at the same time when those structures which are chiefly engaged in cases of infective appendicitis are disappearing.

The second form in my classification was *intrinsic infective appendicitis*. This form is less common than protective appendicitis, but the one which attracts most attention because of the violence of its processes. This form got to stand as a synonym for all appendicitis colloquially, although less common than the first or comparatively harmless form.

The third form, which was called *syncongestive appendicitis,* is like the first form, an irritative lesion and not an infective lesion. It consists in irritation from the presence of interstitial infiltrates which appear along with vascular

disturbances of other viscera simultaneously in a chronic way.

The fourth type was *extrinsic infective appendicitis,* and related to the extension of infection from neighboring structures to the outer coats of the appendix. This process commonly occurs slowly and seldom leads to violent destructive changes.

We appeared to have then four separate and distinct types of appendicitis, two of them being irritative lesions, and two infective lesions,—the commonest lesion of all, and one which took the patient most often to the doctor's office, being least often one which really required operative procedure.

Among other points apparently new was the idea that the chief menace in cases of infective appendicitis depended upon the narrowness of the appendix. Its outer covering of peritoneum, and its muscular layer, do not become distended so rapidly as the inner lymphoid and mucous layers when any exciting cause leads to swelling of the distensible inner structures within the tighter outer sheath. Compression anemia of inner structures results from their swelling within a tighter sheath, and these tissues, deprived of normal blood supply, become very vulnerable to attack from bowel bacteria. Anything which leads to ordinary swelling of the inner coats—the presence of concretions—extension of a common colitis—torsion and damming—selective affinity for streptococcus toxins—and many other causes for swelling may precipitate an attack of acute infective appendicitis most unexpectedly.

Whenever one starts off on any line of observation he promptly finds more vistas opening from the same path. The results of trying to lessen the amount of surgical injury in the operative work of appendicitis brought saliently forward the facts of self-protective powers of the individual. Upon this observation as a basis, and through opportunity given by new data belonging to the Century, facts were assembled for

the purpose of establishing principles of a new era in surgery. This we may call the fourth or physiologic era. The first era was the heroic, dating in history from the days of Hippocrates or of the early Egyptians. Then came Andreas Vesalius and the anatomists who established the second or anatomic era of surgery. Pasteur and Lister introduced the third or pathologic era, and this is now prevailing the world over. Metchnikoff and Wright brought forward new facts which I correlated for a basis upon which we may found the fourth or physiologic era in surgery.

The dominant idea of the third or pathologic era (which is to disappear to-morrow) is to prevent the development of bacteria in wounds and to remove the products of infection by means of our art. Inimical bacteria as well as body cells are composed of protoplasm. Both are simple morphologically but highly organized chemically, and in the course of evolution have come to be the peers of each other as a result of the struggle for existence. Anything which is destructive to the protoplasm of bacteria is likewise destructive to the protoplasm of body cells. Germicides which were introduced into our armamentarium during the pathologic era in surgery, have done an enormous amount of harm when employed without knowledge of the fact of their being injurious, not only to inimical bacteria but also to the body cells which should be physically free to resist the entrance of bacteria. In addition to the free use of germicides, detailed work which had for its purpose the removal of products of infection, exhausted the natural store of energy of the patient so that he was less well equipped for taking up the fight against bacteria. Further than that, our confidence in measures for securing asepsis and antisepsis,—together with improved methods in anesthesia,—led us to forget that when operating we were at work upon a living sentient organism. Operations which might have been com-

pleted in twenty or thirty minutes were often extended to an hour or two hours in duration, in order to allow perfection of detailed operative technic. We did not realize that energy granules were going out of the patient's brain and nerve cells like steam out of an escape valve while this work was going on. We did not fully understand that all of the machinery of the ductless glands, arranged by nature for purposes of meeting infection and conducting repair, was being thrown out of gear at the time when the store of reserve energy of brain and nerves of a patient was being let off and wasted.

When Metchnikoff and Wright came into the fields of pathology and physiology with their description of phagocytes and opsonins, there seemed to me opportunity for making a review of the entire subject of operative surgery, in the idea of founding a new general method of procedure based upon physiologic principles. According to the principles of the fourth or physiologic era we were to conserve the natural resistance of the patient and to turn him over to himself—to his own phagocytes and antibodies—as quickly and helpfully as we could. It is the home rule idea. The surgeon is merely to turn the tide of battle between bacterium and body cell, leaving the patient with his normal physiology as nearly intact as possible. "Get in and get out" was the legend which I applied for purposes of brevity when describing the leading idea of the physiologic era. My first formal presentation of principles of the fourth era of surgery was made in the Section of Surgery and Anatomy of the American Medical Association, in 1908, and at the following International Medical Congress, in Budapest. Observations which led to a grouping of data for purposes of establishing principles of new procedure were published in 1910 by Saunders, in my little book entitled "Dawn of the Fourth Era in Surgery." This con-

sisted of various articles previously published and aiming at a general conclusion.

There is no need for detailing any of the points here, excepting in a brief way. When proceeding step by step with methods which conserved the energy of the patient, I soon found myself running against established principles of the third or pathologic era. Operations which were conducted quickly were said by critics to be carelessly performed operations, because of the neglect of technical details. Operations conducted through short incisions were held to be incomplete, because "they failed to expose all of the pathology,"—quoting a familiar form of expression. Operations which failed to allow thorough removal of products of infection were considered by competent surgeons in the light of extremely risky procedures, and diametrically opposed to all of the spirit of present-day surgery. (Curiously enough it was this present-day surgery for which I had made my first and most vigorous fight when entering the profession—and against the almost united opposition of the majority of the leading surgeons at that time.)

Observations leading to the arrangement of data for establishing physiologic surgery were based upon a few main points. Lawson Tait had presented better statistics than any other abdominal surgeon in the world, at a time when some of us were enthusiastic over antiseptic surgery and he was railing at it. His results called for explanation which we could not then give. It seemed to me that he was conserving the natural resistance of his patients through rapid operating and the infliction of a small degree of surgical injury. It looked very much as though his patients with retained natural resistance were meeting infection better than the patients of the rest of us, with our long drawn out and carefully conducted technic of new art that was based upon the best science

of the day. Added to the statistics of Tait was the fact that patients with purulent collections in the peritoneal cavity sometimes recovered without operation. That again was testimony in favor of the idea that the patient himself was enabled to conduct some pretty good germicidal work. Ochsner's so-called starvation method, in appendicitis with spreading peritonitis, still further indicated that the patient exerted a great deal of control over violent infections if he were not disabled by surgical shock at a critical time.

The simplest big fact that surgeons had overlooked was that every man would die as the result of every pin-prick were it not for the resistance to bacteria which was offered by his body cells. It was noted that ability to resist infection was greatest in pin-prick cases, and that resistance diminished proportionately as a wound was larger than a pin-prick. A natural deduction was clear—that the nearer we could bring a surgical operation to pin-prick character, the better the chances of that patient for meeting infection with his own internal resources. Most important of all was the gradually accumulated testimony from my own cases of intra-abdominal infection in which products of bacterial action were purposely left in the peritoneal cavity at times when their removal would have added to the degree of shock. At one time I arrived at the point of closing the abdomen without drainage after operations for appendicitis and pyosalpinx with abscess, and even turned the canal of a psoas abscess into the peritoneal cavity, believing that the patient would then be less exposed to the dangers of infection from the air. This was found to be running the idea past its limitations, although no patient was injured. Calmly presented scientific papers by other authors bearing upon the subject were being overlooked. For that reason I continued to employ a style in presentation which was harmful to me personally, but more effective for throwing a

diamond hitch about the loose ends of the new load for a profession that was already overburdened and restive.

Surgeons of the entire world were at this time reaching extreme limits of operative technic belonging to the third era. They were exhausting the reserve supplies of energy of their patients through dangerously conscientious observation of rules for removing products of infection. My statistics seemed only to irritate colleagues and I apparently stood practically alone for a long time against the sweep of the current of the third era, which had the tremendous momentum and velocity belonging to enthusiasm based upon scientific conviction. I was trying to make potential energy of the fourth era transform the tremendous kinetic energy of the third era. Statistics offered in evidence to show that the third era was passing its pivotal point and meeting the law of diminishing returns seemed like trying to stop a river by tossing in a stone. Distinguished surgeons visiting New York came less often than formerly to see me, and when dining with other surgeons presumably asked the familiar question—"Between you and me, what do you think of him?" It is this "between you and me" question that leads to the inhibiting of progress as well as to the comfortable and companionable commission of crime. The effect upon my practice was disastrous. Hardly a week passed that I did not learn of some case that had been turned away from me to some other surgeon, and were it not for a very thrifty somebody in the home, the question of means of support for my family would have been a serious one indeed. One day at New Orleans my dear old friend, M. H. R., of Boston, said: "Let us go out for a stroll. I want to talk with you." As we walked under the beautiful live oaks together, his remarks were in substance as follows:

"When a man has done as much for our profession as you

have done I hate to see him go to smash along a wrong road. You are certainly all wrong in this matter, and your teaching is dangerous. You do not realize the volume of work that is being done in this country, and the adoption of a method of surgical procedure from a teacher may mean the actual saving or the actual losing of very many lives every day. A good many men look upon your statistics as untruthful, or at least arranged favorably. I do not look at them in that way myself. My idea is that either you classify abdominal infections differently from the rest of us, or your reports cover the sort of cases that the rest of us save,—or else, what is likely enough, you have had one of those remarkable runs of luck which will sometimes come to any man and lead him all astray for awhile. None of the men in New York seem to believe in you in this matter excepting W. T. B. He thinks your idea is right, but says that it makes his blood run cold and he does not dare to follow in your lead. I told him precisely what I have just told you and that he shows his customary surgical judgment and discretion in not following your lead."

My reply was, "Let me run up to Boston and care for three or four of your cases of appendicitis with advancing peritonitis. Just send me a telegram at any time and I will take the first train." "There!" he said, "Just what I thought! You can't mean what we mean, in this class of cases at least, or you would not have a patient wait about seven hours at the best for your arrival from New York." As a matter of fact, on the spur of the moment I had misspoken. Such cases really could not be kept waiting.

Boston was one of the last cities to adopt any of the principles belonging to the fourth era, at least in relation to abdominal infections. The reason for this was because of the high degree of learning and skill which had been developed in

that city when the principles of the third era were throwing a great new light over the entire field of surgery. As a general proposition we may say—The better the surgeon the more difficult it is for him to put aside a fine structure of elaborate knowledge that has been carefully built out of his best conscience and intelligence and approved of by tradition. One of my German friends, a man of the highest standing in scientific surgical circles, said: "I do not care what your statistics are; we must not follow your idea. We must stick to principles."

In the very inner circles there is always someone who knows all about some one's else work. Furthermore, there are always outsiders who wish to know, and who make inquiry in these inner circles. The halting of progress and the suppression of an advocate of new principles is temporary only, and it represents a healthy normal movement. It means that no man is to be allowed to advance ideas rapidly until busy men have had time and opportunity to look the subject over in their own way. In the *Medical News* for July 2nd, 1904, Dr. Hotchkiss stated that in one of the hospitals with which he was connected emergency cases made up a large part of the work. The mortality rate in appendicitis previous to 1898 was, in that hospital, 31 per cent., under the accepted methods of the third era of surgery. After adopting for trial the methods of the fourth era of surgery, which he had formerly held to be unsafe or dangerous, Hotchkiss had a run of 72 appendicitis cases without a single death, although 26 cases of the series were of gangrenous appendicitis with or without perforation, and 15 cases of gangrenous appendicitis were complicated by a spreading peritonitis. Stop and think about that for a moment. Through the influence of steadily keeping up pressure, like the man at the dock with his back against a loaded canal boat, I gradually felt the

principles of the fourth era swinging out into free sailing room. First there was a report that someone in Paris was following up the idea. Then came favorable news from Bonn,—and from Australia. Surgeons in various parts of the world were listening. In Chicago, where one famous surgeon had reported 14 consecutive deaths in 14 cases of appendicitis with spreading peritonitis managed according to the principles of the third era, Ochsner and Murphy introduced such great improvements relating to ideas of the fourth era that the death-rate was brought below 5 per cent. in that same class of cases. A layman would probably find it difficult to comprehend the nature of a struggle over principles in surgery. He would naturally ask: "Why don't surgeons settle such questions promptly if it means, as it does mean, the saving or losing of hundreds of lives every week?" If the layman were a lawyer we might answer him with the story of a good old lady who did not understand why expensive legal talent was arrayed on both sides of the question if a certain socially prominent woman had committed theft. The old lady decided the question promptly in her own mind. Said she: "If Mrs. Blank says that she did commit theft, they can punish her without the aid of lawyers. If she says that she did not commit theft, they can try her case with lawyers. In my opinion, if she does not say that she did not commit theft, it is clear that she did."

One particular feature in connection with my work relating to the fourth era of surgery aroused a great deal of adverse criticism. During the most refined part of the pathologic era surgeons employed rubber gloves in the idea of lessening the number of bacteria which might be carried into a wound upon their hands. Rubber gloves, however, had the effect of lessening that trained sense of touch which is so important to the surgeon, and operators wearing gloves were not prepared

to do as dexterous work in some fields of surgery, particularly abdominal surgery where the sense of touch is more important than the sense of sight. I made a demand upon the profession to give attention to this point, and stated that we could not fully carry out the principles of the fourth or physiologic era if we were still to use rubber gloves in abdominal surgery, because such long incisions were required in order to allow one to work freely when guided by the sense of sight. The number of bacteria that would be carried into a wound by the bare hands of a careful surgeon would presumably be less than the number of bacteria falling into a large wound from the air while the surgeon was at work. Rubber gloves had come to form such a routine part in the work of the third era that the profession, as a rule, objected very seriously to the firm stand which I took against the indiscriminate use of rubber gloves.

Another feature which caused a great deal of adverse criticism was the bringing forward of the new and old principle relating to the advantages of rapid operating. The painfully detained technic developed by surgeons during the third era required a great deal of time at the patient's expense. Any one who neglected to follow all these details, preferring to give the patient advantages of a rapidly performed operation, was called a careless surgeon because he did not stop to give an extreme degree of care to each step. "Careful surgery" sometimes led to having a lifeless patient in cases in which quick work, neglect of details, and "careless surgery" would have left the patient with plenty of energy for overcoming the effects of neglected details.

Many years must pass, even in these times of rapid change, before the principles of the fourth era will be carefully grasped. I recently watched an operator who cut out a dark-colored, thickened, lymph-covered omentum in an appendicitis

operation. It was really loaded with protective material but "looked bad." He then proceeded to devote nearly twenty minutes to getting out purulent material, almost all of which might have been left in the abdominal cavity without harm. A very long incision was employed, and more than an hour of time expended upon an operation which might have been completed with ease in ten or fifteen minutes through a short incision, according to the principles of the fourth era of surgery. Further than that the patient was left with a weak point which would favor the development of a post-operative ventral hernia,—an altogether unnecessary defect in this particular case.

Principles of the third era are still employed harmfully in the dressing of open wounds. (1) Germicides like peroxid of hydrogen, bichlorid of mercury, or carbolic acid are employed for cleansing purposes. They destroy new repair cells. Saline solution would be employed instead in accordance with fourth era principles. (2) The wiping of a wound ever so gently injures new repair cells. The fourth era surgeon would prefer to leave purulent material in place if it could not be readily flushed out with saline solution—and no wiping. (3) Absorbent dressings when placed in contact with wound surfaces injure new repair cells. The fourth era surgeon places a protective medium like silver foil or Cargile membrane between the wound and the absorbent dressing. Procedures which are right now in daily employment as virtues according to the third era idea, are vices from the fourth era viewpoint.

A great deal of harm has been done in surgery by the employment of germicides when antiseptics which are not germicides would have sufficed. We must remember that bacteria and body cells both consist of protoplasm, and that protoplasm of body cells is injured by any germicide of sufficient power

for injuring the protoplasm of bacteria. Bacteria depend upon their own vital energy, while repair cells depend in a way upon a greater store of energy from the body cells which give them birth. This gives the patient a natural advantage. Were it not for this fact, surgeons would have more quickly come to realize that a germicide was simultaneously destructive to repair cells and to bacteria. There are many antiseptics which inhibit the development of bacteria without injuring them severely, and at the same time do not injure repair cells very much; but even these antiseptics are often less desirable than a simple saline solution, which is isotonic with blood serum and which gives body cells and bacteria an even fighting chance. Under these circumstances the body cells often win better than when they are aided by allies of antiseptics which complicate the military program. Even at the present date in the history of progress of surgery the majority of surgeons in all countries have not as yet emerged from the dark ages in this matter. Bichlorid of mercury, carbolic acid, and peroxid of hydrogen, while immensely valuable in a few situations, are, on the whole, perhaps more harmful than valuable when applied in wound treatment by the laity, by nurses, by general practitioners, or by surgeons who follow principles of the third era of surgery too indiscriminately. For household purposes by the laity there is no handier antiseptic than plain borax water, although some of the powerful antiseptics which are not germicides would be preferable if the public could only get to know about them.

In addition to the idea included in the principles of the fourth era of surgery, of causing the least possible degree of shock through operative procedure (thus avoiding undue liberation of energy which is stored up in the cells of brain and nerves, and necessary for conducting repair), the psychology of the patient in advance of the operation was

taken into account. My cue was taken from a patient some years ago with cancer of the breast. She asked if the operation would cause much suffering. My reply was—"Yes. You will have headache and backache and a lot of aches for a day or so after the operation. You will be nauseated, and will be bad company for the nurses who are trying to be kind to you, for several hours after the operation." With a look of relief upon her face the patient replied: "Thank God I shall be present to have all of these troubles!" The idea struck me at once. Here was a patient from whom fear of death had been removed; she would bring pride and will power to bear after the operation, with the ease that belongs to a full degree of courage. Since that time this applied psychology has given advantage to many a patient. Another point in applied psychology related to the day after operation. It was observed that almost all patients were exhausting themselves by making undue and unnecessary effort to feel well. They reminded me of the individual who has fallen into the water and is not contented to simply keep his head above the surface but who tires himself by trying to get shoulders and all out. On the day after an operation it is well to say to a patient: "Now don't try to feel well; don't try to be yourself. Just take it easy and remember that you do not have to think of anything or do anything for a couple of days. Take a sort of mental vacation. We will take good care of you, and after that, you can begin to help yourself." The shortest possible period of anesthesia was employed, because ether and chloroform were known to interfere with the phagocytosis, with metabolism of toxins, and with general elimination, for the reason that these substances take into solution some of the lipoids of the ductless glands. These glands cannot act well as governors until their lipoids are restored. The shortest incision which would suffice for

completing an operation without jeopardizing any of the patient's interests was employed. Viscera were left undisturbed as much as possible and not subjected to the effects of my curiosity. Crile very soon afterward amplified this general idea on a basis of good philosophy, and introduced refinements along the same line. (Cushing first introduced the idea of blocking nerve sensation in the course of an operation. He applied the process to large nerve trunks, while Crile went a step farther by applying it to small and more active nociceptor nerves of the skin and superficial tissues. Corning was the first to block the spinal cord. These are all American investigators.) Crile accomplished with morphine and scopolamin in advance of operation what I had attempted with a bit of applied psychology. His two drugs have the effect of breaking up the associative faculty, including the group of fear thoughts which a patient has usually gotten together in advance of operation. Crile showed further, that ether and chloroform take into solution not only lipoids of ductless glands, but also those of brain cells, and that anesthesia with chloroform or ether is partly due to interference with conduction of nerve impulse to the brain by the obstruction caused through the presence of disorganized cell contents. Crile showed still further that by the injection of local anesthetics along the lines of incision, sensory-nerve impulse which caused waste of energy from brain cells was lessened. He advocated the employment of nitrous oxid and oxygen which did not take lipoids into solution, and which caused less disturbance in other ways. It has been a great satisfaction to observe the advantages to the patient given by the refinements introduced by others at a time when my own work along the same line represented the beginnings of a systematic method for conserving the energy of the patient and allowing him to turn it over to the account of repair.

The principles of the fourth era of surgery as applied to emergency complications of typhoid fever and of ulcer of the stomach are not as yet approved of by the medical profession. When there is typhoid perforation of the bowel, a patient's respirations are to be knocked down to twelve or less per minute with opium. This is the first step. When the respirations have been reduced to this rate, it is an index of the degree to which peristalsis has been inhibited. With inhibition of peristalsis, the spreading of escaped contents ceases. The shocking peripheral irritation which is being shot into a patient's centres of consciousness is also inhibited by the opium. Local anesthesia of the skin and tissues at the site of incision is then secured, and in the typical typhoid cases a tube wick drain is quickly inserted to the cecal region (within a few inches of which some ninety per cent. of all typhoid perforations occur). This operation requires less than one minute for its performance; sometimes less than thirty seconds. In cases of dangerous typhoid hemorrhage, the same procedure is followed. The reason for the beneficial influence of drainage in cases of hemorrhage without perforation is the evacuation of parenteral bacteria which are free in the peritoneal cavity in many of these cases, and which often seem to introduce the most serious toxic feature. Lymphatic hypertrophy in the bowel wall proceeds in a compensatory way satisfactorily in the presence of the typhoid bacillus in most cases, but when parenteral bacteria appear in the peritoneal cavity hypergenesis of lymphoid tissue is not sufficient to give birth to a controlling proportion of those leucocytes and macrophage cells which have been previously managing the typhoid toxin. In many cases of typhoid paresis of the bowel, parenteral poisons which are over-stimulating or paralyzing abdominal ganglia, may be drawn away by an operation which hardly needs to be dignified by the name of operation. Patients with any form of acute

peritonitis seem to bear opium remarkably well. Dr. Alonzo Clark many years ago laid down the dictum, "Do not measure the opium which is given to an acute peritonitis patient. Measure nothing but his respirations." The reason why opium is preferable to morphine in these cases is because it causes less nausea, inhibits peristalsis more surely, remains active for a longer period, has greater diaphoretic properties, is excreted more slowly, and has fewer secondary complications than morphine. The advocacy of the employment of opium in these cases is met instinctively by opposition on the part of doctors and nurses generally, because the dangers of that drug and its alkaloids have led us to forget their actual value under certain conditions. Furthermore, there is a special objection to opium in surgery, as demonstratd by Cantacuzene in his experiments upon guinea pigs. He showed that simultaneously with lessening of sensation, there is a tendency for phagocoytosis and reparative processes to come to a state of rest. This would naturally give bacteria opportunity to multiply. Infected animals subjected to the influence of morphine died sooner than ones not under its influence, other things being equal. In this particular situation—emergencies of typhoid fever and gastric ulcer—other things are not equal. Opium in itself is a dangerous resource, but in this situation we are choosing between the lesser of two great dangers, and when opium is employed in conjunction with a rapidly performed operation for securing drainage, with means for lessening wound pain through the aid of local anesthesia, the principles of the fourth era of surgery are applied in a field in which the principles of the third era of surgery, with its detailed work, were extremely destructive to typhoid patients. In cases of perforating ulcer of the stomach or duodenum, the principles of the fourth era as we apply them in cases of typhoid fever, will save many patients who would succumb under the ideal technic of the

third era of surgery. The idea of merely turning the tide of battle quickly by means of an operation which suffices to turn the patient over to himself, giving him home rule, and reserving ideal technic for some later day, was all based upon the observations which I made originally in connection with desperate cases of appendicitis. This was at a time when an easily borne procedure which did not repair defects or aim at removal of products of infection was absolutely and diametrically opposed to the teachings of the day.

At the time of the height of the second or anatomic era in surgery, a great authority predicted that surgery could go no further. He stated that all of the main facts were known and all avenues for new discovery had been investigated, with the result that nothing was left for surgery excepting the perfection of manual technic, and the training of students in methods for best exercise of judgment. The only hope for the future of surgery he believed lay in these two fields of endeavor. Since that time the third or pathologic era of surgery has placed the whole anatomic era in the light of a detail, so small that real danger exists of students neglecting to learn its valuable principles. The vast impetus given to surgery by the principles of the pathologic era will seem equally unimportant when the principles of the coming fourth or physiologic era have undergone full development. At the present time I can see nothing clearly beyond the fourth era of surgery, and in that respect am probably quite as small minded as the surgeon who saw nothing beyond the second era.

It is my belief that the home rule idea (dependence upon the internal resources of the patient) is to become a large feature of the Medicine of to-morrow. Neurasthenic patients are benefited by almost any sort of a charlatan in whom they have confidence. Christian Science has made more cures than we of the regular profession like to admit. A doctor of

mediocre attainments and positive nature, with a convincing manner, gets patients out of bed sooner than they are gotten out by an erudite scholar who carries doubt in his mien. Whenever a new drug is introduced, it makes remarkable cures while enthusiasm lasts, but when skeptics get after it, its therapeutic value rapidly wanes. When Count Mattei was in court, and being subjected to trial for fraud, he presented five cured cancer patients, and yet his medicine was distilled water only. We laugh. Wait a minute! How about those five cancer patients? Are we perhaps overlooking something as large as a whole principle? (1) Cancer relates to senescence of cells, and this senescence is manifested in reversion to embryonal types. The new embryonal cells which have lost chromosomes out of their nuclei multiply with abnormal rapidity, and crowd out other and better cells. (2) The mind which is known to exercise control over various bodily functions may perhaps extend its influence even to the point of inciting the production of hormones which restore the lost fighting power of normal cells. This may be a crude form of statement, but I feel that we are overlooking something which the doctors of to-morrow will state in mechanistic terms. We see patients get well when they are given the wrong medicine by doctors in whom they have confidence. Account for the phenomenon in any way you please, but account for it you pragmaphobe!

In the days of the heroic era surgeons did not dare to excise a certain crippled joint. The anatomic era gave operators an opportunity to do joint excisions with a high degree of skill and to take pride in the advance of their art. The glory of the pathologic era lay in allowing surgeons to excise the crippled joint not only skillfully in a technical way, but to obtain primary union of the wound beside. That seemed to be the end desideratum—*dernièr cri*—of surgery.

Surgeons could see nothing beyond this for their art. Now comes the fourth, or physiologic era, showing the surgeon how to avoid the necessity for having this crippled joint to deal with at all. With the aid of the X-ray he finds perhaps a small overlooked tooth infection carrying streptococcus viridans or amœba buccalis which the protecting organs of the patient fail to manage against the influences of selective affinity. He sterilizes the area and may incidentally change the patient's whole disposition. The surgery of the fifth era, which none of us can now imagine very clearly, may fortify a defective gland in the parent, which allows of the development of a defective tooth in the child—which allows the child's joints and disposition to go awry.

I have ridden an hobequs many times with great pleasure. Sometimes the paces of my steed could all be shown in the course of a year, sometimes a number of years were required. For instance, the study of a method for removing dead bone by means of decalcification followed by digestives took me over a comparatively short road, and with few vistas. The method worked out practically, but had a limited field of application. On the other hand, the hobequs of peritoneal adhesions of insidious toxic origin is giving a very long ride, with new scenery on every side. The ride may be described something like this.

About ten years ago I began to observe that adventitious tissues which were not readily accounted for were found in various parts of the peritoneal cavity, and those of a particularly insidious group, causing many complications, were found in the vicinity of the bile tract, including the pylorus and duodenum. Such adventitious tissues were observed to some extent, in greater or less degree, in almost every adult who was examined with reference to the subject. Here then were

symbols requiring metaphrastic version, yet which had been overlooked by translators. Passing mention had been frequently made by authors, of adhesions which belonged to inflammatory disease of the stomach or to cholecystitis, but the large proportion of cases in which adhesions and other peritoneal defects are found in the upper part of the abdomen give no symptomatic history of any acute inflammatory process according to our present methods in reading symptomatic history. We had previously assumed that patients with peritonitis had either a good deal of peritonitis or none at all, yet here was evidence that under conditions of modern civilization many a man has some kind of insidious peritonitis in the upper part of the abdomen, at some time in his life. There is some degree of peritonitis which commonly passes without classification as such. Other observers had attempted to explain the nature of adhesions which occurred in the vicinity of the cecum and of the sigmoid colon, but had mentally connected such adhesions either with acute inflammatory processes in these two regions, or with some mechanical cause. Byron Robinson believed these adhesions in the region of the cecum and the sigmoid to be caused by traumatism inflicted by the psoas muscles, when they were not due to acute inflammatory processes. On giving closer attention to the question of the origin of insidious toxic adhesions in the upper part of the abdomen, it was found that certain peritoneal defects, due to embryonic remnants, were sometimes mistaken for adhesion tissue, and these had to be recognized and classified separately. While I was talking, writing and making class room demonstration upon this subject, Lane called attention to his ileal kink and Jackson brought into prominent notice the veil-like membrane which commonly invests the ascending colon, and sometimes other parts of the colon. Lane and I began in the same year to write upon the subject of toxic intestinal proc-

esses and the structural insignia of such processes. His paper appeared in January of 1903 *(The Lancet)* and mine in December of 1903 *(Medical Record)*. We were both recognizing the same general phenomena, but his observations began in relation to the lower part of the abdominal cavity while mine began in the abdominal attic. One reason why the insignia described by Lane and by Jackson attracted attention in advance of my attic cobwebs was because the latter required a special incision, while the former were right at hand for incidental observation in the every-day appendicitis operations. It was a question in my mind if the Lane kink and the Jackson membrane were related in any way to the insidiously forming adhesions of the upper part of the abdomen. The hobeque at first seemed to take me along the road of tracing both the adhesions and the abnormal connective tissue structures described by Lane and by Jackson to some insidious toxic influence. It had been my impression that peritoneal adhesions proper of the upper abdomen could be accounted for by the passage of toxins through the walls of the bile ducts and gall-bladder, and that remnants of normal structures became hypertrophic because of toxic influences. It seemed probable that toxins which were being excreted by the liver in excess of the metabolizing power of an individual caused desquamation of endothelium. This process was followed by plastic exudate which became organized into adhesion tissue. The web-like character of some of these adhesions suggested spider webs, and in a paper upon the subject these cases were characterized as "gall spider" cases, for convenience of nomenclature. A later view included the idea that toxins not only made their way through the thin walls of the bile ducts and gall-bladder insidiously, but when poured upon the mucous surface of the duodenum they might excite a secretion of hormones which would derange the function of stomach and bowel. Vistas continued

to increase, and I began to believe that toxins or bacteria passed directly through the walls of bowel in cases in which intestinal stasis was present. Later investigators proved the correctness of this theory. Examination of adhesion tissue which was sent to the laboratory resulted in finding the colon bacillus enmeshed in such tissue occasionally. In other cases anerobic bacteria developed upon the culture media. In the majority of cases no bacteria were present. This did not eliminate, however, the idea of bacterial toxic origin of adhesions, because various bacteria might cause insidious desquamation of endothelium, followed by plastic exudate and adhesion formation, without themselves remaining for any length of time in such tissues. Later, evidence was obtained showing that anerobic bacteria and their toxins seemed to be particularly prone to make their way through the walls of various abdominal viscera and to cause tissue changes in both endothelial and connective tissue structures. It was observed that the original Lane kink, sigmoid adhesions, and "cob-webs of the attic of the abdomen" were most abundant near relatively immobile parts of the alimentary tract. The bowel at various normal flexures suffers also from certain effects of hyperplasia of the connective tissue of its normal supports. It is somewhat difficult to draw the line between normal connective tissue of the supports of these flexures and the adventitious connective tissue that is of evolutionary origin plus or minus toxic influence. Adhesions occurring near such fixed points would be in line with the general direction which my hobequs was now following, relating to the toxic origin of such hyperplastic tissues. When toxins cause injury to cell protoplasm with the breaking down of cells, fibrinous tissue appears, but this new fibrinous tissue is readily broken down. Those parts of the bowel with the longest mesentery which are most actively engaged in peristaltic contractions would

have a well recognized tendency to break down young fibrinous tissue so that it would be absorbed again. Near the fixed points fibrinous tissue would have a tendency to become organized into adhesion tissue, or to constitute hyperplasia of such "normal" structures as are found in Lane's kink and Jackson's membrane. On subjecting the denser tissue from Lane's kink and Jackson's membrane to microscopical examination it was found to be strongly suggestive of the connective tissue hyperplasia which is found in Dupuytren's contration. The character of the latter, by the way, has never been explained. It is presumably a selective affinity manifestation of toxic origin, related to the so-called "rheumatic" group of tissue inflammations.

My present belief is that Lane's evolutional theory is correct, but that a theory of toxic influence is also correct, in some aspects of the adventitious tissue question, and that the special influences at work in any given case are to be studied in reference to the particular case.

In Dupuytren's contraction of the palmar fascia the new tissue is dense, because of the dense structure of its local parent connective tissue; while, in relation to bowel tissues, it is more loosely organized, corresponding again to local tissue character. We now know that bacteria can pass through the bowel wall and congregate in suitable niches. Adams, when making sponge tests, inserted bits of sterile sponge into the peritoneal cavity, under most careful aseptic precautions. He found sometimes that bits of sponge were buried in new adhesions of simple irritative origin, while adhesions about the sponges in other cases were filled with bacteria. While trying to direct attention of the profession toward adhesions in the upper part of the abdomen, I noted one day when speaking of "cobwebs in the attic of the abdomen" that it immediately brought an especially intelligent look into a number of

faces in the class. Taking my cue from this I began to use the expression in the presence of my class at the college and at society meetings, and found that the phrase sufficed to introduce the subject rapidly. This phrase and its context matter were soon quoted in various parts of America and abroad. The direction toward effectively engaging the interest of the profession in this subject has at last turned at the guide post of a phrase, and progress of the idea was continuous from that time on, although Lane soon captured the attention of the profession in a larger way. At first only one clinician of note, Dr. Musser of Philadelphia, engaged in conversation and correspondence with me upon the subject. Lane coming into the field later attracted more attention, and has had to do most of the battling which I was about to enjoy. Like many other inventors with imagination he has for the time being lost the sense of relative values of the toxin question, and this subjects him to ridicule and threatens to obscure his real values. His basic ideas correspond to those which I presented in connection with the subject of attic adhesions. Suggestions of great value began to come from men whose thoughts had been turned toward the subject, and who were equipped with special kinds of knowledge relating to the question. The subject in my own hands next included a study of the class of patients who were most susceptible to abdominal toxic influences, and the fact was brought out that the neurasthenic group of patients with defective ductless glands furnished the majority of cases with "attic cobwebs" or Lane's kink, or extensive development of Jackson's membrane. The hobequs has now taken me into the whole field of metabolism of toxins and protein poisons, as well as into the field of bacteriology of the gastro-intestinal tract. It is probable that we have in the attic adhesions and other adventitious abdominal tissues the key to a vast new literature of to-morrow. Unmetabolized poisons or bacteria,

or both, apparently pass through the walls of the bile ducts and gall-bladder, of the pylorus, and of the entire enteron. In patients who are not well enough protected by their natural physiologic resources, these toxins cause injury to the protoplasm of endothelial cells and of connective tissue cells. (The word toxins is employed colloquially and includes the protein poison and other poisons). The injury is followed by fibrinous deposits which become organized at points where free movement of the bowel is inhibited. Further, stress from sagging viscera causes evolutionary hyperplasia of the tissues of natural supports as originally described by Lane. A vicious circle is established through interference with the motility of hollow viscera, leading to a still greater degree of intestinal stasis. At the same time unmetabolized toxins which are poured into the duodenum probably stimulate abnormal secretion from the glands of the mucosa of stomach and bowel. The question of operative intervention naturally came into the field of my work as surgeon. Adhesions were separated extensively and measures were adopted for the prevention of recurrence of adhesions. In most of these patients the original causes for disturbance still persisted, and the operations were of temporary value only. I further observed that the work of Rose, Kemp, Goldthwait, and others who were managing the question of intestinal stasis by mechanical measures, without operation, was quite as effective, if not more so, than my own work in separating adhesions. The method of excision of the colon seemed to me a very severe although logical resource in some cases. The operation of Lane, of short-circuiting the bowel by introducing the distal part of the ileum into the distal part of the sigmoid colon, was a step in advance in simplification, for cases requiring that particular procedure, and I still further simplified the operation by devising an instrument,—"the bowel doormaker"—with which a rapid anastomosis could be

made between the ileum and the distal part of the sigmoid colon. My hobequs has taken me now to the point of believing that adventitious abdominal tissues of mechanical or of insidious toxic origin are not to be separated with much hope of permanent relief, excepting in cases in which they cause actual obstruction to peristaltic movement. It is the internist who is to be most efficient in relieving the patient from the conditions which lead to insidious formation of toxic adhesions or to adventitious tissues resulting from mechanical stress. The surgeon becomes merely a therapeutic resource to be used by the internist as he uses the *Bacillus bulgaricus* and other means for his end in cases that are otherwise intractable.

When I first began to present the subject before medical society meetings it did not arouse much interest or bring out discussion which was profitable or helpful. Now the profession is almost too wide awake upon the subject and we shall have bad results from unwise zeal. I shall continue to ride the hobequs for a year or two more, bringing the subject before various medical societies, and presenting new perspectives. Now that my colleagues are making better observations than I made, and are presenting more scientific data, it will soon leave me free to mount another hobequs and start off on a journey into some other subject.

While working upon the subject of adhesions of insidious toxic origin it seemed evident that ulcer of the stomach and duodenum belonged in the group with expressions of toxic injury. Ulcer of mucous surfaces of the enteron is apparently somewhat similar to a number of skin lesions, representing the selective influence of toxins upon the particular cells by which they are being excreted. In some cases there seems to be toxic injury of the epithelial cells chiefly, giving us the bleeding ulcer. In other cases proliferating endarteritis of the terminal arteries, or thrombosis of capillaries of these arteries, leads to

the formation of localized roundish areas of anemic tissue involving the whole visceral wall. The extent and character of thrombotic processes which seem to occur when toxins are impressing the gastric mucosa in their chemical way, introduces the question of the whole complicated mechanism of coagulation. It has been my assumption that the bleeding sponge ulcer represented leucocytic thrombus or hemolytic change in the contents of capillary vessels. Exudates in the larger vessels which are engaged in chronic ulcer apparently have in the first stage the construction of an agglutination structure. Fibrin ferment from the agglutinated elements then cements them together and forms a morphologic structure. The latter obstructs the circulation of a terminal vessel. The resulting anemic area becomes exposed to microbic or digestive attack, and ulcer forms the objective sign which follows.

My first description of the relation of proliferating endarteritis of terminal arteries to round ulcer, as a result of toxic influence, was published in 1895. It has not as yet attracted the attention of the profession, but other investigators are getting pretty close to the subject and before many years have passed some one will obtain credit for discovering what was recorded eighteen years ago. Ulcer of the stomach and duodenum seemed to be nothing more than one form of expression of the same toxic impression which causes injury of endothelium and of connective tissue, leading to the formation of attic adhesions. We know that the secretion of pancreatic fluid is excited by a hormone which itself is developed by the action of an acid from the stomach when it is poured upon the upper part of the duodenum. When an individual has excess or diminution of gastric acid there is deranged hormone secretion, then deranged pancreatic secretion, then deranged digestive process, then deranged metabolic process, then deranged cell construction and function, then still further

derangement in general of the whole body in the course of the vicious circle. Each disarranged function has its corresponding expression, not only upon the health, but also in the character of mental efforts of the individual and in cell impressions upon his progeny. The symbols consisting of attic cobwebs, then, are of significance.

Lane caught the ear of the profession with his kink while a contemporary investigator was still being held as the possessor of peculiar views in relation to cobwebs in the attic of the abdomen.

Theoretically a scientific fact needs to be stated only once and quietly, and this applies to the sciences proper of medicine. It leaves out the multiple conflicting interests and the human nature that go with practical applied science. It includes also the idea of a reader being equally intense with an investigator. Consequently we have varying conditions to meet when presenting a subject relating to applied practice, and one must employ skill in making all of the repetition that his readers will bear, even to the danger point of becoming a bore. According to original training it seemed to be quite unnecessary, in fact undesirable, to make repetitious presentation of a new point. In practice it was found to be necessary to present an idea in different perspectives sometimes for two or three years before a subject would make any sort of fixed picture upon the professional mind. Notwithstanding all that had been written on the subject of adhesions in the upper abdomen, when the subject was presented recently at a meeting of the Surgical Society, some of the members who were present seemed never to have had the question brought to their attention previously, although they were among the most active representative men in the profession. Many of them had brought forward important observations of their own in other fields with which I was equally unfamiliar. The point made is that new work

is being reported in such volume in America that no one can become *au courant* with all of it.

In connection with the hobequs of gall-stones I published a report upon experiments showing that such concrements were not dissolved excepting with difficulty in the laboratory, outside of the body, and that nothing given internally could reasonably be expected to produce any effect upon them. This particular report aroused no controversy.

Another study relating to the influence of remains of the embryonic vitelline duct in the production of moist navels, and of eczematoid inflammation about the navel, brought out the etiology of these conditions for the first time, apparently. This was true also of another published article describing the occurrence of malignant islands at the navel simultaneously with malignant diseases of the abdominal or pelvic organs.

A late-resort hernia operation was the outcome of one of my experiments upon dogs. It was shown that we might make fixation of the cecum at the hernial opening in such a way as to prevent progression of the hernia. This was not practical as compared with better methods that were shortly afterward developed by other surgeons.

The experimental production of ileal intussusception with carbonate of sodium was an interesting observation made incidentally while I was experimenting with rabbits for the purpose of reversing the peristalsis of the bowel, and probably explained the toxic origin of some cases of intussusception, although the profession has not as yet adopted the suggestion. This particular laboratory experiment can be so easily made that the observation is probably an addition to our knowledge. It opens up another vista for future study.

Experiments to show the reason why patients recover from

tuberculosis of the peritoneum were made with the idea of proving that saprophyte toxins which develop in the fluid after the abdomen is opened account for the destruction of tubercle bacilli. A later study showed that in all probability a hyperleucocytosis excited by simple opening of the peritoneal cavity accounted for the good result, although test tube cultures of tubercle bacilli were promptly killed by solutions containing my saprophyte toxins.

The prevention of secondary peritoneal adhesions by means of an aristol film formed the subject of a report upon experimental work with animals. It was found that the resource had a certain field of value. The published account of later experiments with Cargile membrane showed this resource to have a field of some value in preventing the occurrence of peritoneal adhesions in selected cases. Incidentally the value of this membrane as a resource in other sorts of surgical work was demonstrated.

An attempt at using animal membrane for preventing formation of peritoneal adhesions was first made by Dr. Fritz Baum of St. Louis, but there was difficulty in managing his material. The next step in progress was made by Dr. Charles Cargile of Arkansas, who succeeded in having membrane from the intestine of the ox sterilized in sheets ready for use, but he had no opportunity for experimentation. Using the membrane which had been prepared at the suggestion of Dr. Cargile, I made a series of animal experiments which brought this material before the profession, and it fills a large field of usefulness in many ways. In selected cases it is of value for preventing recurrence of peritoneal adhesions. It allows us to keep sutured tendons from becoming adherent to surrounding structures. It is valuable as a conductor for epithelium when used directly upon granulating surfaces. It has a field for preventing the reformation of dural adhesions.

Experiments germane to the subject of abdominal supporters after laparotomy constituted a series of experiments with animals showing that when proper suturing is done, abdominal supports which cause great annoyance to patients are seldom required.

An addition to McGuire's operation for a suprapubic urethra was presented in a report upon experiments showing that a plastic operation which turned in skin flaps from the wall of the abdomen would make a permanent fistula. The resource is not practical at the present time because the profession some years ago began to take up methods in prostatic work which rendered my operation unnecessary. The same principle when applied for making a permanent gastric fistula constitutes a resource of importance and will be employed by surgeons when they get to it. Details are described in Sajou's Cyclopedia.

The drainage wick presented one of my lesser studies. It was thought of simply as a practical resource of value in my own technic, and not much attention was given to the idea of its adoption by the profession at large. It was quickly accepted by surgeons of the entire world shortly after the publication of my description of its principles. In Europe it goes by the name of cigarette drain, and in this country is sometimes called the B. M. drain ("B. M." being abbreviation for Bob Morris).

Endoscopic tubes which I constructed for direct inspection of the interior of the bladder and other hollow viscera were practical for their day and time, but the rapid development of artificial lighting apparatus progressed so rapidly that my instruments were seldom employed, and no one remembers about them to-day.

The action of trypsin, pancreatic extract, and pepsin upon sloughs and coagulæ was investigated, and the report upon this experimental work has been mostly overlooked by the profes-

sion. Liquefaction of coagulæ with pepsin has a distinct value in selected cases in which we wish to remove retained blood clot or lymph masses in order to facilitate their removal from the bladder, thorax, or other cavities of the body. The resource will remain in use.

Removal of necrotic and carious bone with hydrochloric acid and pepsin constituted a series of experiments in which necrotic or carious bone was decalcified *in situ*. It was then liquefied with pepsin. The method has practical application in a small proportion of cases in which operative resources are to be avoided, but for the most part operative resources are more desirable.

Sometimes a mere suggestion from someone who conceives of a certain procedure will allow someone else to perfect a method. I was impressed by the observation that the endothelial coat of blood vessels conducted repair speedily, very much like that of the endothelial coat of the peritoneum. End-to-end anastomosis of arteries failed practically in the two animals subjected to the experiment, because of the difficulties in obtaining absolute asepsis. This experience was related to one of my friends, a better technician, who promptly devised a satisfactory method, and established the procedure of anastomosis of blood vessels.

The question if evolution is trying to do away with the clitoris was introduced after a series of observations relating to a structural defect which I now recognize as one of the stigmata of decadence. Too many of the accompanying symptoms were ascribed to cause and effect relationship. Overlooking the nature of the stigma was a mistake due to my lack of information at that time. Certain ones of the symptoms really did depend upon this anatomic defect, but most of them belonged among disturbances which are common to the neurasthenic group of patients. This contribution to the subject of

circumcision in girls gave an exaggerated importance to the question. Need for such a procedure belongs largely to the neurasthenic group of patients. Almost any sort of impressive treatment is temporarily of help to these people. I overestimated the importance of this particular resource, but was, nevertheless, doing about what other men were doing at the same time in their own special fields of work as applied to neurasthenic patients. Every sort of fad was "curing" the symptoms that I seemed to be curing. Everything from mud baths to surgical operation helps the neurasthenic when he or she is stimulated by the doctor's confidence in the efficacy of a method of procedure. If one reports upon successful treatment quickly enough he will make glowing reports honestly enough. At the end of a year these patients are mostly all back again for treatment by some other fad method, ranging all the way from osteopathy to the removal of neuralgic ovaries. The sort of treatment which is given depends more upon the physician whom a patient happens to find than it does upon the physician whom the patient should find. There is distinctly a field for the procedure of circumcision, but only in reference to a secondary group of symptoms, for which girls as well as boys need to have the operation done,—and for the same reasons. It has been taken up as a routine procedure at some clinics in reference to girls since the publication of my paper on the subject.

The mechanism and anatomy of subluxation of the head of the radius was reported after experimental work in which it was shown that this accident, the nature of which was apparently not well understood, consisted in separation of the head of the radius from the capitellum by the interposition between them of a loop of orbicular ligament. Eventual recovery appeared to be due to pressure absorption of this entrapped part of the ligament.

Pott's fracture, and the fracture of the fibula which follows adduction of the foot were studied experimentally and data were presented which explained the difference between these two fractures, in the minds of surgeons.

The dowel pin in dislocation of the acromial end of the clavicle proved to be a practical resource, as did also the dowel pin in fractures of the clavicle. My technic has been taken up more or less by the profession, and perhaps deserves to receive still more attention.

A report upon skin grafting from blisters recorded experimental work which seemed to indicate that sheets of cuticle obtained by blistering would be quite as valuable as skin removed by the Thiersch method. My later conclusion is that the cuticle acts only as a conductor of epithelium, and is not more valuable than Cargile membrane or egg membrane for the same purpose.

Ovarian transplantation led to a great deal of controversy, and at first to the general decision that the procedure was imaginary in conception. Practically it was found that ovarian grafting was of value chiefly for preventing a precipitate menopause, but in a certain proportion of cases we may be of help to sterile women by allowing them to have children through the means of ovarian grafts from other women. This can occur in a trifling percentage of cases only, because the tissues of one individual are naturally inimical to the tissues of another individual as a rule. The finding of two people whose tissues are mutually acceptable is an accident because with our present knowledge we have no means for determining which two people will be tolerant of each other's engrafted tissues. Perhaps to-morrow, with the new knowledge of the present century, we may grow ovarian tissues in serum after the Carrel method, gradually adding serum of the prospective recipient of the tissue until the tissue becomes tolerant of the recipient's

serum. The graft may then thrive and maintain function, thus allowing means for relieving some cases of sterility.

The idea as a whole was held to be fanciful when my report was first published. Then the question, taken up more seriously by foreign critics, seemed to stop at the point of assuming that some ovarian tissue must have been left behind in one case in which two children were born subsequently. As a matter of fact, I had been very carefully on guard against any such slip in technic. No one took up the question very seriously until progeny were obtained experimentally by Professors Castle and Phillips in the laboratory of the medical department of Harvard University between black and white guinea pigs the ovaries of which were cross-planted. I received letters which were intended to be insulting from many people outside of the profession. Amused lawyers told me that if the operation were to be done successfully it would interfere with entailment of property and of hereditary titles. Certain religionists wrote that no one had a right to interfere with the plans of God in this way, as it was sacrilegious.

This operation promises to have a considerable degree of value in a small proportion of cases. When one of my patients bore two children subsequently the question arose as to who was the real mother of the children. This forms a subject for debate. My own idea is that the woman who furnished the transplanted ovarian tissue is the real mother—and not the one who bore the children.

The ovarian grafting was done with all of the care suggested by my very cautious associate, Doctor L. A. di Zerega, who observed that not even the section of an ovary should be made within the peritoneal cavity, for fear of some cells becoming attached to the peritoneum and retaining their vitality.

It would be an interesting procedure in the human species to graft white women's ovarian tissue into colored women and

this can be done readily enough, although most of the grafts would fail to retain their integrity of tissue. Personally, I have dropped research along this line because there are so many other things to be done which have greater prospective value. At the time of discussion of this subject at the New York Academy of Medicine men whom I knew would be opposed to the idea were invited to take part. They were chosen purposely in order to bring out all weak points. Speakers who had become interested in the possible importance of this question in the field of medicine and of sociology might have been invited instead, but it seemed better to have the more severe criticism first.

Knauer and Chrobak are generally credited in literature as the ones who first conceived of the procedure of ovarian transplantation, but my published report is on record as antedating theirs, which appeared sometime after the European visit of my assistant, Dr. Schlapp. In none of my experimental work has any claim for priority been made at the time of publication of reports, but sometimes it has seemed best subsequently to call the attention of the profession to date of reports upon various subjects.

Healing through the agency of blood clot seemed to offer an important new field for observation after I had made various experiments in employing the aseptic blood clot for filling wound cavities. After eliminating the danger and causes for failure, a satisfactory technic was finally evolved. A demonstration of the method was made at the clinic of Dr. Max Schede in Hamburg in the autumn of 1884. Dr. Schede was very much opposed to the idea, saying that it was too dangerous, even though it had a practical side. He became very much interested in the subject, however, and published a report upon this method in the *Deutsche medizinische Wochenschrift*, for June, 1886, before I had published my own report upon

tlie experiments. Assistants at the Hamburg clinic were familiar with the facts in the case, and Dr. A. M. Phelps who was present at the first public demonstration of the method gave an account of the experience subsequently. This method of obtaining repair through employment of aseptic blood clot came to be adopted over the entire world, although the idea at the time of its first demonstration in public was opposed by the one who obtained credit for the method. In that case he was the one who first published, and it is consequently known as the Schede method.

MacEwen had incidentally called attention to the "organization" of aseptic blood clot before this time, but he had not made any application of the observation.

About the year 1890, while engaged in laboratory work, the thought occurred to me that cells of morbid growths might be susceptible to selective staining, up to the point of their own destruction. Methyl blue was chosen for the experiment because of the affinity shown by certain specimens in the laboratory for this staining agent. At that time our knowledge of hemolysis was not so well under way, and I used undesirable media when making the injection, but published a note on the subject in the *Medical Mirror* for 1891. When Ehrlich and Von Wasserman very recently took up this study I again turned to the subject, and applied the method in a case of sarcoma of the carpus. Circulation above the elbow was cut off with an Esmarch bandage, and a solution of methyl blue and Ringer's solution was injected into the ulnar artery and made to complete the entire arterio-venous circuit of the region engaged in the neoplasm. All of the hand and arm within this irrigation area became bright blue, but when the Esmarch bandage was removed normal circulation was not restored, and I had to amputate the arm later at the shoulder. Microscopic examination of the blue tissues showed no stain-

ing whatsoever of cells of the neoplasm, and the blue color of tissue appeared to be due to nothing more than staining of coagulated lymph exudate. It is my belief that this phase of chemo-therapy still offers a good open field for experiments. It is perhaps only a question of finding the viper which will turn upon the cell that has extended hospitality.

A report upon the method of pinning fractures with the aid of the fluoroscopic screen was first published in the *Journal of the American Medical Association* for October 21, 1911. The subject is one of the most interesting which I have taken up, and it promises to develop along lines which will amplify our resources in the treatment of fractures. The idea of employing the fluoroscopic screen in this way came from my experience in removing a pin from an ascending branch of the left bronchus with a pair of alligator forceps inserted through an opening in the trachea. It seemed probable that if the fluoroscopic screen could be of so much service in this case with a pin to be removed, we might reverse the process by employing it for putting pins in elsewhere. Experimentation showed that it was often possible while looking at a fractured bone through the screen, to have fragments adjusted and a silver pin carried into a drill opening in the fragments. This was done with the aid of a cannula which had been inserted obliquely down to the spot through a trifling incision. Even a fracture of so large a bone as the tibia was pinned with the aid of local anesthesia, the pin remaining permanently in place. Details of the work need not be given here, but the subject is one which promises to enlarge under our practical application of the principle which is involved. The method appears to be one of my best contributions to the subject of treatment of fractures.

A study of the gastric weak line in wounds of the abdominal wall, published in the *Journal of the American Medical Asso-*

ciation for June 17, 1911, refers to an explanation for the nature of the frequent failure of union in wounds of the upper part of the abdominal wall. Failure of the abdominal wound to unite in the midline after operations above the navel occurred so frequently with different operators, that a special explanation seemed to be desirable. Upon looking into the question it was found that union failed in the Head zone for the stomach. Apparently the trophic nerves share disturbance with sensory nerves. An afferent impulse from the stomach to a segment of the spinal cord results in efferent impulse to the distribution of somatic nerves which supply the abdominal wall in the Head zone. Disturbed trophic nerves in this zone apparently fail to conduct repair well, after some of the operations upon the stomach and duodenum.

In one case in which I ligated the abdominal aorta for aneurysm, the aneurysmal sac filled in a few minutes with clot, but the patient died later from slough of a part of the bowel wall that lay against the steel forceps which had been employed for holding an elastic ligature around the aorta. It has seemed to me that if the same device were to be applied in another and similar case, I might save a life, because the accident which caused the death of this patient could have been easily guarded against if foreseen,—but physicians have not allowed me to have another case of this sort. No one among the laity can realize to what extent the physician guards his patient against men like myself.

Description of a point in the differential diagnosis between appendicitis and tubal disease was published in the *American Journal of Obstetrics* for 1909. The diagnostic point consisted in finding the right lumbar ganglia hypersensitive in cases of chronic appendicitis, and both right and left lumbar ganglia

hypersensitive in cases of tubal disease. That constitutes a differential diagnostic point. The report belonged in a general way to the description of a new point in the diagnosis of appendicitis (published separately) which has now gone into a number of text books, and will be of distinct practical value to diagnosticians. Anatomists cannot as yet tell us why the lumbar ganglia should be hyperesthetic in such a case. My theoretical assumption is that we are dealing with an undiscovered spinal reflex, of similar character to that which occurs in the Head zones. This, if verified, will open a whole new vista for doctors of to-morrow.

A study of the philosophy of acute post-operative dilatation of the stomach was published in the *Boston Medical and Surgical Journal* for April 20, 1911.

Sometimes when experimenting one runs across a fact which is of value even though the object of the experiment is not attained. I planned to infect kidneys of rabbits with tuberculosis in order to determine if a subsequent ligation of the renal vein would result in a hpyeremia which might prove destructive to the bacilli. Test tube cultures of tubercle bacilli were injected into the kidney parenchyma of a series of rabbits. Two or three weeks later some of the rabbits were opened and their kidneys examined. Large well-marked foci of tuberculosis were under way. The rabbits were allowed to go for some time longer, but when they were opened for a third time for the purpose of having their renal veins ligated, the foci of tubercular infection had become much smaller and the rabbits recovered from tuberculosis of the kidney without receiving aid from me. The lesson was impressive as showing the extent of control which may be exercised by resistance factors of an individual over such a definite lesion as tuberculosis of the kidney.

It was when employing artificial synovial fluid experiment-

ally for its purely mechanical effect that I happened to observe a side action of equal value. This latter consisted in the unloading of serous infiltrates from inflamed fibrous structures. Much of the pain which belonged to chronic joint-affections is apparently due to tension of the fibrous structures caused by interstitial infiltrates, which appear in response to the irritation of joint toxins. Hygroscopic boroglyceride and glycerin within the joint cavity incidentally abstracted these infiltrates apparently, and patients would sometimes speak of being more comfortable an hour or so after the injection has been made, than at any previous time for weeks or months. If quinin and urea hydrochlorid is injected into aching fibrous structures at the same time it "puts them to sleep" for a week or two. Whenever one is engaged in experimental work along new lines, he is almost certain to run across surprises of this sort. My original idea was simply to prepare a mechanical lubricant for joint surfaces to serve after the breaking up of adhesions. One part of boroglycerid, three parts of glycerin and four parts of aqueous saline solution constituted the formula. Incidentally this was found to be of value as an antiseptic injection in some of the acute joint infections. On the whole it has been of greater value in fields for which it was not intended, than in the one special function for which I planned the injection originally. That experience shows that surgery is a sport closely allied to field sports. It is like partridge shooting. The hunter misses one bird, but gets the next one. Perhaps no bird gets up from the place where his dog is pointing, but another bird gets up unexpectedly from beneath his very feet. At the end of the day he has had grand sport. Go hunting for new ideas, but do not expect to get them where you expect to get them! Unexpected vistas open to one who is in motion.

I have often been wrong in my position. At one time there seemed no doubt but the use of hydrogen dioxid was essential

for life saving in cases of abscess in the peritoneal cavity, but it was really the lack of manipulation of viscera which gave the good results when we depended upon hydrogen dioxid, and the patients would have made good recovery without it.

Some years ago when experimenting with peroxid of hydrogen, which up to that time had not been in practical employment in surgery, the chairman of the surgical section at a meeting of the American Medical Association asked me to present some subject. "Give us something that you are at work upon at present. We are short of papers this morning." I turned over the program and hurriedly wrote upon the back of it notes on the use of peroxid of hydrogen which were then presented to the audience, and these when published were republished by editors of most of the medical journals of different countries. It brought peroxid of hydrogen into immediate employment by surgeons of the whole civilized world. It is a question if the profession was benefited on the whole by the introduction of this new resource. Peroxid of hydrogen is used harmfully in wrong places by so many physicians to-day that we were apparently not quite ready for it. It destroys granulation tissue, hyaline epithelium, and other new repair cells quite as readily as it destroys septic fluids, and when employed for cleansing purposes upon a wound which is undergoing repair, the effect is detrimental. Peroxid of hydrogen is valuable in the right place and harmful in the wrong place. It is most often used in the wrong place, and is very harmfully employed by the laity in household medicine to-day. This resource should not have been brought forward until doctors had come to learn that a germicide injures body cells simultaneously with bacteria. It should never have gotten into the hands of the laity at all.

The very elaborate perineum operations which required more or less knowledge of geometry and the remembering of

a good many names it seemed to me might be very much simplified. In 1903 I perfected a method for doing the ordinary perineum operation rapidly, by making a semicircular incision with a pair of scissors, stabbing the scissors down to the pubo-coccygeal portion of the levator ani muscle of each side, and then opening the scissors *in situ*. This movement stripped the tissues away from the muscle for a short distance and left it exposed. Further freeing of the muscles was made by stretching tissues with the fingers. This exposed the levator ani muscles and allowed them to be brought accurately into apposition in the middle line, furnishing the chief elastic support of the perineum. Sutures which brought together fascia carrying the transverse perineal and bulbo cavernosus muscles were then applied. This satisfied the surgical sense, because the chief muscles involved in the operation were actually under observation when they were sutured. The operation made very strong repair in the average case, and could be done with the employment of no instruments excepting a pair of scissors and a needle in five or six minutes' time. The procedure was so simple that I called it "the office boy perineum operation" because an ordinary office boy could do it well, and without operative ado after once seeing it performed. Others have recently been publishing the technic of this operation and it appears to be well established.

When scissors were employed in some of the surgical work for which a knife was customary, it promptly aroused comment, and was ascribed to my having peculiar ideas. As a matter of fact there seems to be less oozing when scissors are used, because of the constriction of small blood vessels which are "sheared." Certain work can be done more safely by advancing with scissors instead of with a knife, and the field in which they might be used to advantage was so large that they were made to supplant the knife practically altogether for a

while just to show what could be done. Now as the subject has received sufficient comment, and enough demonstrations have been made before my class at the College, the knife will be employed rather more than during the past five or six years. There is abundant testimony to the advantage of using scissors instead of the knife in very much of our work that was previously done with the knife only. Letters from many surgeons, tell of the advantages they have gained from observing the use of scissors, and they ask about particular models which are to be used. It is well that they ask this latter question, for it is a very important matter. One will have to devote considerable attention to the subject before making a choice of models of scissors, and getting the right sort of steel. Small matters are not small matters in surgery.

It is not unlikely that the employment of scissors in place of the scalpel has cost me a plump hundred thousand dollars. The reason is because that sort of choice is looked upon as a mark of eccentricity, and serves to identify one with peculiar ideas, excepting in the minds of men who have time to stop and give the matter full consideration. The business man will ask why a surgeon should persist in employing a method which he knew would cost him a loss of a hundred thousand dollars. The answer is that a profession is better than a business. There are a number of advantages associated with the use of scissors of the right sort, in surgery. One may work much more rapidly and with less danger of injury to structures in certain operations, and my idea was to impress the profession with that fact by giving continued object lessons to my classes at the college and elsewhere. While surgeons in general are poking fun at such an idea, every once in a while somebody stops to think.

One may imagine that he foresees all the factors in a problem, and yet some little practical point will defeat all of his

work. I devised a silver tube, placed one end of it in the lateral ventricle of the brain in a case of hydrocephalus and placed the other end of the tube in the temporal vein, believing that an advance step would thus be made in the treatment of these cases. The fluid would not flow from the ventricle into the vein because it apparently remained in a sort of equilibrium, a balanced pressure, without *vis a tergo* sufficient for distending the temporal vein which had collapsed at the point of introduction of the tube.

When upon the house staff at Bellevue Hospital the question of suture in cases of recent simple fracture of the patella was brought up by Dr. Fraser Fuller, and after he had sutured one, I took up the work and we performed the first six operations of this sort that were done in this country. Dr. Fluhrer, the skilled technician, was visiting surgeon for my division, and it was through his kindness and under his direction that I was allowed to apply the principles of antiseptic surgery in a field (joint surgery) which made the older surgeons stand aghast at that time. My published paper on the subject called out violent protestations from surgeons over the entire country, and younger men of to-day who suture simple fractures of the patella as a routine procedure can have no conception of the feeling that was engendered by the proposition to do that sort of work in the early eighties.

Osler brought out a storm of adverse criticism when he said that few men did any creative work after the age of forty, and men past that age should be chloroformed. As a matter of course this latter exaggeration was intended for fun, but was taken up by people without proper sense of humor who did not know Dr. Osler the wag. They neglected to place emphasis upon the key word "creative." Osler was quite right in the basic idea notwithstanding the fact that numbers of men

achieve their greatest success from the world's point of view after they are long past forty. It will be found that most of them whose minds are engaged in creative work do most of that work before the age of forty. Curiously enough, Harvey chose to speak of the same age when stating that no one past the age of forty could be got to adopt his theory of the circulation of the blood. A letter of Darwin's in relation to the origin of species stated that he expected to convert only young and flexible minds. About thirty years was required for the adoption of Harvey's theory and his friend Hobbs said that he was the only man who had the good fortune to see a new doctrine accepted by the world at large during his life time. At the present time progress is much more rapid and we have seen a number of new doctrines accepted in as short a time as ten years. Galileo writing to Keppler on the subject of the telescope said, "Oh, my dear Keppler, how I wish that we could have our hearty laugh together. Here at Padua is a principal professor of philosophy whom I have repeatedly and urgently requested to look at the moon and planets through my glass, which he pertinaciously refuses to do."

Our profession is certainly intolerant of any doctrine that does not agree with prevailing medical thought, and is often so intolerant as to be seemingly cruel. Men have died of broken hearts from ridicule or abuse, because they were advocates of theories which later became solid rocks in our foundations. If Semmelweiss was actually killed by the attacks made upon him because he argued that puerperal fever was a preventable bacterial disease, and if Oliver Wendell Holmes did *not* die while being held up to scorn for the very same belief, it was probably because Dr. Holmes had a larger sense of humor than Semmelweiss. Men without sense of humor must be cautious about attempting accomplishments. This again illustrates the point which I have previously made about

the weakness of sensitiveness. The colleagues who attacked these innovators were not to blame. The enemies were men of strong conviction based upon the perfectly legitimate knowledge which they had consistently and conscientiously gained to date, and their established ideas were about to be overthrown. Medical opinion which has been slowly and strongly formed in the interests of human welfare is not to be thrown over in a moment by the wish and will of any one individual. When such an individual believes that existing opinion is wrong and that he must oppose it, he is not to complain if his vanity becomes battered and dented. It is a matter of injured vanity if he is distressed. What else is injured when one is attacked? Men who suffer and who die because of adverse criticism do so because of functional derangement of their vanity. That is the diagnosis one might make on post mortem examination of the psyche. Were it not for this natural opposition to novelty which is inherent in every stable profession, there would be no stability, no safe tradition, and we would whirl about in response to every gust of doctrine. It is well to distrust both the adventurer and the true investigator. The coins of both are certain to be handled by a profession which will find out quickly enough which ones ring true and which ones ring false. Nothing but vanity causes the wish for obtaining recognition for discoveries, provided that one is a true worker for science.

A man must decide at the very outset of his career that whatever he does in an active way will hurt him, because every new movement in a profession or business will set up a series of reciprocal changes, and these vary proportionately with the degree of force which he expresses. He may find comfort in retreat, if that seems to be worth while, and if retreat is more satisfactory to his type of mind. He will no doubt have read the histories of various innovators in all fields of human

activity. These records are commonly couched in terms of sadness or of triumph by historians, who tell of the struggles against tradition and the obloquy and derision that were aimed at an individual who formed the subject of their essay. As a matter of fact, the contemporaries of an innovator who are held up in contempt by historians, had their own large and proper side for every question. A man who follows up a line of new work is by no means to be trusted fully by his responsible contemporaries,— and if free from self-delusion, does not even trust himself fully beyond the matter of intention. In olden times men who were engaged in disturbing the smooth course of tradition were sometimes put out of the way,— but now-a-days they are quite safe so far as the question of staying alive is concerned. Times change so rapidly now-a-days that if one can hold to a good new idea for a long enough time, and strongly enough, someone is almost certain to arise in the course of a few years and exclaim, "By George, he is right!" He may kill off antagonists very much as a certain young hunter is said to have killed a grizzly bear. The hunter was reported to have run the bear to death, and on further explanation stated that he was ahead of the bear all of the time.

The subject of medicine like that of other sciences has merely been scratched on the surface as yet, and our openings are simply deep enough to show the richness of the deep, unturned soil. One cannot go for a three-months' vacation without getting behind the times, and by the time when a book is published it is nearly out-of-date in medicine and in the other sciences to-day.

Man having lost the rat stage of instinct and not yet developed to the point of making reason take its place, goes at his great questions very clumsily. Even such a great mind as that of Darwin engaged itself with adult forms of life when

studying questions of struggle and of mutual dependence. The eugenists to-day are confused over their problems which relate to the higher and more complex forms of life. If the eugenist of to-morrow may have his reasoning methods guided by instinct like that of a rat, he will study his problems basically from some microbe like streptococcus viridans, which in the course of a few days may develop several strains with their respective hereditary characteristics, and mutant forms peculiar to each strain. These mutants and varietal forms in a very few days more may go back to the original parental type; a toy model of the whole subject of eugenics.

A very large field of surgery is to be opened by our new knowledge relating to the influence of enteric toxins. A start was made in a rather crude way, surgically, when excision of all or part of the colon was done in cases of colonic stasis in which medical resources failed to relieve patients sufficiently. The next step in progress consisted in hanging up sagging colons and in that way lessening the degree of stasis. This was a marked advance with a smaller death-rate, and added a means for securing a great deal of comfort in well selected cases, when surgeons like Coffey and Reed did the selecting, and personally applied their highly artistic technic. A third step in progress at the present moment seems to be better still. It consists in making a short-circuit between parts of the bowel in such a way as to throw most of the colon out of commission. A fourth step with which I am now experimenting consists in making longitudinal inversion of the colon, folding it in upon itself and not removing any part of it. The operation is done so easily and with so little shock that patients bear this work without much difficulty or apparent risk, and it now remains to determine the sources of danger and failure. Almost every new procedure is found to have some unexpected drawback. We have moved very rapidly

from the ruder features of this new work of relieving bowel stasis to more efficient and safer methods which rarely need to be supplemented by the severe work of colectomy. We shall to-morrow have a diminution in the number of certain cases which were formerly held to be purely medical. Some of the cases of intractable neuritis, neuralgia, migraine, epileptiform seizures, and some of the psychoses, will be disposed of by surgery, to say nothing of those cases of excessive nervous irritability, moroseness, rheumatism, arteriosclerosis, and skin diseases of the sorts which we have gradually begun to associate with poisoning from some part of the alimentary tract processes. One of my patients has been relieved from a most distressing spasmodic asthma by short-circuiting of the bowel. In fact, one does not know where to begin or to end in speculation over the possibilities of this new "preventive medicine." There will be a lessening of the secondary group of disturbances which lead to arrested development of organs of the embryo. At the present moment there is apparently no more promising field for inspiring new work than the proper and careful elaboration of cases which are to be recognized in competent consultation as belonging to the toxic enteric group and in which the patient may often be relieved and sometimes permanently cured by our new surgery in this field. Many mistakes will be made, to be sure.

We are getting toward the point where the idea of very distant influence of enteric toxins may be considered practically. I have reported one case in which a clergyman after becoming nearly blind from chorioiditis was obliged to give up his work. Dr. Kirkendall of Ithaca acted upon the idea that such cases might be of toxic origin, and sent the patient to Dr. Stockton of Buffalo for consultation. Dr. Stockton went a step further, and stated that the condition was not only of toxic origin, but he specified colonic bacteria as the probable mischief

makers. Both consultants then agreed that fibroid degeneration of the appendix might be the exciting factor for excessive development of colonic bacteria in this case. The appendix was removed. The patient did have fibroid degeneration of the appendix; he did have excessive growth of colonic bacteria,—and immediately after removal of the primary disturbing factor from the case the series of secondary results came to an end. The patient recovered from his blindness and went back to work. It is not so very long ago that such a series of events in connection with a case of chorioiditis would not have been anticipated. That is the sort of work we are now to do, instead of "giving the patient something to try."

We all remember very well when physicians were quite ready to prescribe for dyspepsia or for chronic constipation without first having an X-ray picture of the stomach or of the colon for guidance. It was only a few years further back when doctors applied splints for fractured bones without having a radiograph for guidance. The X-ray is now quite as important a diagnostic resource in dyspepsia and constipation as it is in fracture.

Our first interest in the study of microbes came with the knowledge of injury that is done to higher organic life by harmful species. It was this first knowledge that developed the hostile attitude of mind on the part of the public toward microbes in general. We next learned that cells of our bodies are amœbæ, and inimical to many kinds of microbes,—next, that several species of microbes were useful to us, not only in making food for us, but in helping to prepare it for assimilation (symbiotic microbes). We learned later that some kinds of microbes were harmful to each other, and our last knowledge impresses the fact that some kinds of microbes are useful to each other, not only in helping to prepare the way and making food for other microbes, but in furnishing conditions particu-

larly favorable for the continued existence of our good microbes (microbic symbiosis). Northrup and Zae have shown that certain yeasts which live upon lactic acid have the trait of keeping lactic acid bacteria in a condition of activity for long periods when the two are grown together in the same culture medium. These yeasts are stock farmers which cultivate and protect herds of lactic acid bacteria for their own purposes very much as ants tend their flocks of aphids. We shall likely enough find that people who carry such pathogenic bacteria as those of typhoid fever or of diphtheria for long periods without harm to themselves may owe this condition to a symbiotic relation between their pathogenic bacteria and some other species. In that case the medicine of the future may have to cultivate special bacteria for the purpose of destroying other bacteria which keep certain harmful bacteria alive. It will be a different class of medical practice from that which in former years treated "inflammation of the lungs" by putting liniments upon the chest and giving calomel internally.

In the medicine of to-morrow we are to view our cases in such a new way that a practitioner of even the latter part of the nineteenth century who has not kept up to date will not know what we are talking about at all. Dr. Lewellys Barker says that one result of the almost explosive progress of the purely laboratory subjects has been to place internal medicine in an embarrassing situation. All at once the air has become thick with applicable facts of the most diverse origin, and only the younger clinicians have had opportunity for securing a training permitting of an understanding of even a part of them. Take for instance, psoriasis, as probably being one of the external manifestations of an internal protein poisoning. Let us say hypothetically (not upon known fact) that in one case it represents allergy to a protein of milk. We would then have the following formula representing the development

of psoriasis, and the method of procedure by the twentieth century physician:

Milk { microbe food—unmetabolized toxins.
man food—metabolized toxins.

Unmetabolized toxins { proteolytic end-result toxins.
proteolytic metabolizable products.

Proteolytic end-result toxin { psoriasis caused by dermal excretion of proteolytic end-result toxin in an allergic patient.

Mar food { body cells—work.
waste products—elimination by emunctories.

The crudest method of treatment common to the present time—application of local remedies.

A step in advance—application of local remedies combined with shotgun prescriptions aimed at colonic toxins.

Treatment belonging to the future—determination of the presence of one particular microbe which chooses one particular proteid for its food and which makes one final demonstration with selective affinity end-products in the form of psoriasis. The treatment would consist in depriving this particular microbe of its food, in attacking it with vaccines, or in destroying the microbe at some nidus.

One reason why diabetic diets have been beneficial in the empirical medicine of the past is because in some cases they starve out microbes which are disturbing the pancreas and squeezing the islands of Langerhans. In our more enlightened medicine of the present moment we now know that the Bulgarian bacillus destroys these harmful bacteria rapidly and efficiently, and that when this bacillus is properly employed in

its capacity as a hound for the colonic bacteria, many cases of diabetes clear up at once, even while the patient is on quite ordinary diet. Our new medicine is to advance from the study of diets for the diabetic patient, and is now to include in addition a study of diets for his microbes. The host is to be fed and the parasitic microbes are to be starved.

Wechselbaum, after examination of the pancreas in 183 cases of diabetes, states that in every one of this series he found distinct and characteristic lesions in the islands of Langerhans, while in a large series of control cases representing many other diseases no corresponding changes were found. He states that these lesions had been overlooked because examination for discovering hydropic degeneration and special methods of preparation of tissue is required. All of our new knowledge on the subject allows us to observe the microbe as the leading causative factor in diabetes, and physicians who are sufficiently skilled in the use of the Bulgarian bacillus for destroying those bacteria which are harmful in their influence upon the pancreas, are reporting immediate and direct results from such treatment in selected cases. This is fully in line with our medicine of the twentieth century, which is just now beginning to seek the microbe in diseases which previously were treated as idiopathic entities.

Glycosuria is never anything but a symptom and it depends upon hyperglycemia. The latter is a disturbance of the sugar metabolism, which in turn is due to a variety of causes, a number of organs being involved in the work of sugar metabolism. The organs of internal secretion are the ones primarily involved, and the pancreas appears to stand first in importance among these organs.

So long as the doctors treat glycosuria without knowing if the patient has chronic pancreatitis, and so long as they treat sciatica without knowing if a myoma of the uterus or of the

prostate gland is present, so long will quacks thrive, and the profession complain about charlatans. The matter is in our hands.

Treatment of dyspepsia may be classified historically in five stages: In early days it was due to dyspeptic "humors,"—sometimes treated by blood-letting to let the humors out. The second stage was that of empiric use of drugs. The third stage included employment of drugs and of diet lists, based upon analysis of contents of the stomach and bowel. The fourth stage was marked by examination of the stomach with the fluoroscope, and determination of the general character of conditions which were present. The fifth stage upon which we are now entering, goes still further back. At the present time we seek for the fundamental toxic features associated with neurasthenia, and for anatomic or physiologic defects of various organs. Now that the whole number of patients of all sorts in the physician's clientele is being lessened by our methods of preventive medicine, physicians will have time for the proper care of dyspepsias. Gastric disturbances to-morrow will receive the sort of attention which has always been required and which seldom has been received by the patient.

We often hear about cases of "gall-stones without symptoms." That is because we have not recognized the symptoms in these particular cases. Doctors have been taught to look for biliary colic, or painful features of gall-stone disease, and they know little of the more common but comparatively painless features. There are glycosurias, dilated stomachs, chronic dyspepsias, and all sorts of distressing conditions precipitated by or continued by gall-stone influence. They are not recognized as having any relation to the gall-bladder condition. One of our most famous surgeons suffered from lumbago for many years, and it was only incidentally that he discovered

that the lumbago was due to a glycosuria. This in itself was treated for a long while without much result, until consultants discovered that my friend had gall-stones. When the gall-stones were removed, his glycosuria cleared up, and the lumbago ceased. If this history can happen to a man who was alive to all of the up-to-date knowledge in our profession, just imagine what a number of laymen must be suffering from gall-stone influence without hope of having the cause for their distress discovered. My friend's case was one of "gall-stones without symptoms."

An instance of our unsettled position upon almost any question in medicine to-day is shown in connection with the condition of loose kidney. 1. Thousands of practitioners have never recognized a case of loose kidney and would not know how to go to work to discover it. 2. Other physicians report loose kidney as occurring in at least ten per cent. of all of the women who come into their offices. 3. Some surgeons finding a loose kidney proceed systematically to determine if it really is a case for operation, or one for mechanical support. 4. Many doctors observe cases of loose kidney which manifest so many symptoms of neurasthenia later that the operation seems to have been a failure. They do not see the carefully selected cases in which patients have been made well, because well patients do not continue their visits to the doctor. 5. A few surgeons believe that all loose kidneys should be fixed, on the ground that this feature ought to be cared for no matter what other complications may be present. 6. Some physicians believe that no loose kidney should be fixed because the condition is but one symptom of a general condition. 7. Some surgeons expend an hour in doing the operation of fixation of a kidney by one method, while others do the operation in ten minutes by another method. The ten-minute operation certainly removes one objection to the surgery of the subject.

The situation as a whole then is this: Although there are many physicians and many surgeons who know the various phases of the entire subject, the chances of any one patient getting into the hands of these men are comparatively small. Too few loose kidney patients are operated upon and too many loose kidney patients are operated upon.

Whenever we cease calling a disease a disease there is hopeful progress. Arteriosclerosis is no more a disease of the arteries than typhoid fever is a disease of the spleen. In one group of cases it may be traced to the influence of cell poisons derived from proteins; and in the medicine of the future the physician will likely enough test the response of any given arteriosclerosis patient to various proteins. He will then proceed to eliminate the protein which is found to immediately cause a rise of blood pressure in a given patient. Practically all organic activities are due to stimulation of cells by organic or inorganic products of other cells. Disease commonly means that we are simply taking over-doses of these necessary products, which in overdose form are poisonous. The overdosing is due chiefly to lack of efficiency of the cellular agents of control, and we shall have a new definition of disease when this matter can be stated accurately in scientific terms in relation to what we now call disease.

While arteriosclerosis is only one symptom of a general condition, high blood pressure is commonly due to special sensitization of the arterial system, either directly through the influence of microbic toxins, or by some body cell toxin which sensitizes it to exaggerated influence of epinephrin. The kidney changes in these cases represent only a third or fourth stage in the sequence of events.

The effect of microbes upon some of the body colloids appears to leave them with a tendency to pick up insoluble material, and to arrange it, by molecular attraction, in the

form of concretions. All of our concretions which form in the lumina of viscera have a colloid element in their structure. Even the small uric acid gravel is reported to show colloid combination so often that we must look to the colon bacillus (which is believed to be harmless in some cases in which it occurs in the kidney) as the mischief maker. Just at present it is the fashion to believe that a few of these bacilli occurring regularly in the pelvis of the kidney are quite harmless, but we may look for some investigator soon to demonstrate their influence in producing calculi through colloid combinations. The history of the colon bacillus has been peculiar in the respect that it has so often been considered as non-pathogenic in various places in which it was found later to be a malefactor.

In the early nineties a few men whom we commonly held to be visionary were making a large feature of "orificial surgery." They ascribed exaggerated importance to the influence of rectal papillæ. This idea was scouted by the majority of physicians, but whenever a subject receives so much attention by any part of the profession it usually means that a germ of truth is to be found on investigation. I made a study of inflamed rectal papillæ, finding them to be really a potent factor in many cases of peripheral irritation of obscure origin. Material was given to Dr. B. B. Stroud, who under my direction made a study of the anatomic structure (Dr. Stroud's paper was published in the *Annals of Surgery* for July, 1896), and established the point that these papillæ consist of especially arranged nerve elements, and have a special function. When inflamed they are capable of exciting reflex disturbance which is out of proportion to their insignificant size.

One reason why Germany in particular has made greatest advance in medicine is because of the freedom with which post-mortem examinations are allowed in that country. At the hospitals in this country members of the house-staff make a

sort of unconscious classification of members of the visiting staff who follow up their cases and observe post-mortem findings. These men are held in higher esteem than other members of the visiting staff who do not take the trouble, or who do not make a feature of learning what is to be learned from post-mortem examination. In the *Journal of the American Medical Association* a report has recently been made upon the percentages of correct clinical diagnosis verified by autopsy findings in four large institutions. These were given as sixty per cent.; forty-seven per cent.; seventy-eight per cent.; and seventy-one per cent. respectively. In one of the hospitals, in a series of two hundred cases, the autopsies showed a correct diagnosis in one hundred and thirty-three cases. There was a wrong diagnosis forty-three times and no diagnosis twenty-four times. If this represents a proportion of wrong or faulty diagnoses in institutions where men of the first class are in charge, one may readily understand that the percentages of correct diagnosis in general must be far below the forty-seven per cent. of one of these institutions. In three thousand autopsies reported upon by Dr. Cabot, of Boston, and quoted in another note, many important diseases fell below fifty per cent. in recognition, and some below twenty-five per cent. The public does not realize this at all; in fact, the subject is not given serious thought as yet by the medical profession, because we are as yet only upon the verge of that study of medicine which is to belong to the twentieth century. The newspaper press has recently published under large heads the statement that half of the diagnoses made at Bellevue Hospital are incorrect. If one half of the diagnoses are correct and comprehensive Bellevue Hospital should take rank among the very first of hospitals of the world in representing scientific attainment on the part of its medical staff.

One reason why post-mortem examinations are not more

often made in this country and in countries which may be dragging along behind the times in "internal medicine," is because of the prejudice against autopsies. The development of scientific medicine and therapy in any country has always been in proportion to the systematic performance of post-mortem examinations. In the first part of the nineteenth century scientific medicine in Germany was far behind that of France, or even of England, but in the latter half of the nineteenth century, one man, Virchow, lifted the entire profession of Germany beyond that of all other countries. German medicine had previously occupied a very low position because of the tendency of the German mind to follow philosophy, very much as science has always remained hidden in the Orient because of the same tendency. Schelling applied the principles of an idealistic philosophy to the interpretation of the phenomena of nature (including the symptoms of diseases among phenomena of nature). His philosophy in particular had kept medicine in Germany at a low level, because speculative philosophy must always smother knowledge in proportion to the cleverness and intellectual power of the metaphysician. Medical thought was divided among four or five dissenting schools at that time, instead of acting upon well-founded universal methods of inductive scientific thought. Hahnemann as well as Schelling stood forth conspicuously in the early part of the nineteenth century. Virchow punctured the inflated pomposity of speculative advances of individual schools and ridiculous systems by his teaching at the autopsy table. He showed that every disease of every sort represented injury to the anatomy, and that in this injury to the anatomy lay the signs which gave us opportunity to read backward to the commencement of the history of illness in any given case. He insisted that we were not to attempt to have any conception of pathological processes excepting upon a basis of objective

knowledge of anatomical changes brought about by disease. Virchow rapidly convinced that younger generation, which learns quickly from object lessons, and during the latter part of the nineteenth century there was hardly an important teacher, not only in Germany but in any part of the world, who had not been influenced by Virchow. He taught physicians to think anatomically-objectively. That is one reason why some of us have such repugnance to the system of Freud, which is typical of German medicine of the speculative period belonging to the first half of the nineteenth century. Freud, in fact, is one of those lingering spirits of a past age which occasionally flares up, as a tongue of flame flickers brightly but momentarily from among dying embers. Under the lead of Virchow, pathologic anatomy became a study of the first importance in the world of medicine, and consequently Germany received the first effect of the impulse and became a leader in medicine. At the present time when America is striving to lead in medicine, with that quick adaptability belonging to our temperament, we are restrained by certain forces belonging to the prejudice of a country in which every man is a voter. Our medical laws relating to autopsies are still formed upon a basis of prejudice and sentiment. One's reputation, to say nothing of freedom, is somewhat jeopardized in New York State by his attempt at learning from one case how to prevent the next five similar patients from dying. We have at least one American hospital which requires on the entrance of a patient a signed permission from the nearest relative for post-mortem examination in case of death of that patient. No patient is admitted unless such permission is given. The standing of this hospital is such that the rule has proved satisfactory and has allowed the staff opportunity for checking up clinical and laboratory findings from the research point of view. This requiring of permission to make post-mortem examination in

case of death as a requirement for entering the hospital does not alarm people, as one might imagine. It seems to have the quite opposite effect of giving patients confidence in the sort of institution which is interested in science to that extent. People are pretty sensible for the most part when they stop to reflect. Most of the patients who enter this hospital know well enough they are not going to die anyway. In any given hospital, success in obtaining permission for post-mortem examination depends largely upon the personality and tact of some one official. Some of the prejudice against post-mortem examination has no doubt resulted from the knowledge that unnecessary disfigurement has sometimes resulted from autopsy work. This is a feature requiring niceness of taste and genuine human sympathy toward the feelings of relatives. There is much opposition to post-mortem examination work on the part of undertakers and burial societies, because undertakers often find that it causes interference with embalming methods, and they influence members of a family by promising that "no mutilation will be allowed" if they are given opportunity to take charge. This form of statement has a profound effect upon relatives who have a wrong idea about the nature of post-mortem examination, which commonly enough would cause no mutilation worthy of the name. There are some burial societies which are active in preventing autopsies upon any of their deceased members. In time the public in this country will come to understand the benefit to the family in having exact knowledge of the causes of death in any given case. Benefit to the public from knowledge gained by the physician will aid in avoiding sorrowing of the same sort for other families through the advantage to science from the opportunities given by objective lessons. As we advance in civilization these obstacles to our learning the way for being of best service to the family and to the public will to-morrow over-

come the prejudices which belong to the present stage of our cultural period, and which are by no means so great as were the prejudices of one hundred years ago, or even of twenty-five years ago.

One advantage in object teaching of any sort is the modesty and simplicity of character which remains with the teacher. Any speculative system requires the development of pomposity and aloofness on the part of teachers. This attitude is necessary for their personal protection against attack which cannot be repulsed in any way excepting by grandeur of manner.

Germany while rapidly developing in medical science under the influence of Virchow, took advantage at the same time of the antiseptic surgery of Lister in England and of the new bacteriology from Pasteur in France. These two prophets at that time were not being honored in their own countries, but they represented two of the great advances of the nineteenth century.

There is a movement at the present time to control research work through the aid of a fund devoted to avoidance of waste. Such a movement, if wisely conducted, may result in very great benefit, but chiefly through classifying work that has already been done, so that great numbers of men do not go over old ground simultaneously, believing themselves to be upon new ground. A committee would have great difficulty in determining what new work was worthy of support from the fund. Mr. Cyrus W. Field told me that his closest friends and members of his family tried to prevent him from laying the Atlantic cable. He said that engineers and electrical experts explained to him precisely the reasons why his money would be wasted, and his efforts futile. All new work would be in danger then if a committee in charge of the fund were to attempt to say what work would be productive of good results or otherwise. Would Darwin or Copernicus have re-

ceived support from such a fund? In all probability waste in research work is maple seed waste—representing a part of nature's large plan.

In the early days of ovarian surgery in general I took an unpopular stand against it. From my viewpoint of training as a surgeon it was evident that a great deal of unnecessary work was being done in this field, upon incomplete diagnoses. So long as the trend of opinion was toward operation for all sorts of neurasthenic pelvic disturbances it was difficult for a few voices crying in the wilderness to stay the movement, and I was simply looked upon as one who chose to be on the opposite side of questions—desirous of radically operating immediately upon acute appendicitis patients because the profession at that time was upon the other side, and preferring to take a stand against indiscriminate ovarian surgery because the profession at that time was upon the other side. This note is inserted because of a call this morning to operate upon a young woman with gastroenteric disturbance and pelvic pain and tenderness. Everything was in readiness for an operation. The physicians in charge said: "We have not been able to agree upon the cause of her trouble and would like to have you go in and find out." The case was one in which I made a tentative diagnosis of splanchnic disturbance precipitated by nasal hypertrophies, in a neurasthenic patient. The abdominal operation was not performed. It was a purely medical case, but the doctors in attendance would have operated had this opinion not been given.

The question sometimes arises if insanity follows ovariotomy. When reading over a list of quoted cases, one will observe that a certain number of them are definitely of the sort belonging to cyclothemia or to some other psychosis. Ovarian symptoms which led to the operation were merely those ordinary symptoms of psychosis which almost any

psychiatrist would have recognized, and the following insanity was simply an increase of symptoms of the depressive stage, intensified perhaps by the shock of operation or by the pomp and circumstances of such a procedure.

There is no need for mutual recrimination in this matter. The psychiatrist would have treated quite as many cases of actual ovarian tumor without examining the pelvis at all. My point is simply that the time has about arrived for placing more confidence in that general diagnostician whose decision is to be looked upon as authoritative and who can be trusted by men in all special fields of medical work. We have a few diagnosticians of that type now. They are so overwhelmed with work that time limitation restricts their best efforts. They are constantly overlooking features of cases which are recognized by others later. In a single year I have seen four cases of rectal cancer that had been overlooked by a single famous diagnostician who had prescribed laxatives or tonics for each patient and then had gone on to the next case. A London hospital report showed that in seventeen per cent. of cases sent in with the diagnosis of appendicitis that was not the disease at all. If this is the proportion in a locality where there are well-trained physicians, what proportion of mistakes would be likely to occur in diagnosis by poorly equipped men or by medical faddists?

A resource which is apparently small in range may really have its efficiency extended to the saving of thousands of lives. Take, for instance, the method of making frozen sections of small tumors of the breast when they are first discovered and determining at once from microscopical report whether an extensive operation or a limited operation is to be done. In former years we did not like to ask a patient to have a disfiguring operation performed when she appeared at the office with a small tumor of the breast. We quieted her fears and

waited to see how the growth would behave. When we were sure that a growth had become malignant it was then too late for a cure as a rule. The little resource of having a pathologist present to make a frozen section at the time of operation allows us to catch some cases of malignant disease in their very incipiency when they are quite curable. Patients who in former years postponed operation until we were sure it was necessary are now quite willing to have a small tumor removed in order to satisfy their curiosity and ours. If a growth proves to be benign a trifling operation suffices. If we find epithelial nests in a small growth and are thus shown the need for a radical operation, we have commonly saved a life through the aid of this method. Making frozen section examination when small breast tumors are first observed would lead to the saving of life of practically every woman who now dies of cancer of the breast. It is probable that we shall have fewer breast cancers to care for, when the profession has awakened to the fact that toxins appear to be responsible for the development of many kinds of malignant and benign neoplasms of the generative organs. In the meantime we have a means for preventing deaths from cancer of the breast, if people choose to avail themselves of that means.

Incidentally it may be worthy of remark that W. J. Mayo has collected statistics showing that cancer of the stomach and duodenum forms one third of all cases of cancer in civilized man, but not in other animals. This would be in line with the idea that man in the course of decline suffers more than other animals from influences which lead to inefficiency of protective glands.

Very few people are physically perfect. There is something wrong with most of us; therefore if we get into the office of almost any specialist, the specialist will find something belonging to his department and may believe it to be the chief

thing wrong with the patient, when in fact it may be only a trifling part or no part at all. If I send a patient to a heart specialist and the patient comes back without heart disease, it is because the doctor was not in. To-morrow the highly educated general diagnostician will give proper direction to patients after making out a brief of their cases very much as the lawyer makes out a brief.

In addition to structural weaknesses which appeared when man got up on his hind legs and assumed the erect position, a large number of secondary complications have developed, causing a pretty important part of invalidism in general. The sagging of viscera leads to interference with nutrition and assimilation, and favors the development of inimical bacteria. Toxins from these bacteria intensify the effects of other weaknesses. Man assuming the erect position not only had a tendency to bring out structural defects which are observable on every side, but also a resulting series of pathologic changes of most insidious character, which threaten to hasten the influences of decline for our species.

One reason why we have so many breast tumors, uterine tumors, ovarian tumors, and other neoplastic growths of the generative organs of women at the present time appears to be because defective tissues have a tendency to revert atavistically to primitive cell growth under the influence of enteric and other toxins. There seems to be a loss of control over embryonic cell rests. These latent cell rests do not spring into activity so frequently when the surrounding tissues are fully developed.

It is time now in this part of the twentieth century for doctors to take up the subject of neurasthenia in a scientific way, because the condition is one which is increasing rapidly in frequency and will call for more and more skilled attention on the part of our profession. Various separate features of

a neurasthenic condition have been considered by different specialists in the light of diagnostic entities belonging to their special departments. It has been a fault belonging to the present stage of our cultural period. The surgeon, for instance, has done a great many unnecessary operations upon neurasthenic patients, because from his point of view some organ out of place or crying with neuralgic pain was the cause for the neurasthenic condition. Sometimes this organ has really been the precipitating factor at least and the patients have been so much benefited that the surgeon has been misled into mistaking a precipitating factor for a causative factor. The psychiatrist takes up the subject of neurasthenia from an entirely different viewpoint. He is apt to hold that the causes for neurasthenia rest in the psyche of the patient and if he can give proper direction to the psyche, through suggestion aided by other therapeutic resources, a cure will be accomplished. The neurologist follows still another line of thought. He believes that treatment which will increase the general nerve tone of a neurasthenic patient will dispose of features belonging both to physical defect and to mental aberration. The hygenic faddist follows still another line, and has abundant statistics to show that neurasthenic patients subjected to his methods have been very much benefited. The mystic healers, somatologists, thaumaturgists, and other pretenders, have about as good a list of cures of neurasthenic patients as have members of the regular medical profession. All of these cures by the regular medical profession or by pretenders are genuine so far as they go, but they have to be reported quickly. Further than that they are commonly reported in the form of support for special pleading, with failure to report relapses and cases in which no benefit was received at any time. Many of our neurasthenic patients do not want to be neurasthenic. There are no braver or more courageous people, no dearer or

lovelier natures than may be found among neurasthenics whom we brutally healthy critics are inclined to speak of lightly, if not in actual terms of opprobrium. Pity the neurasthenic—admire the neurasthenic—blame him not. When making a study of fundamental conditions which are present in cases of neurasthenia, it seems to me that we must at the outset consider the close relationship which in general exists between structure and function. This relates to daily cell construction of various organs (belonging to flux of protoplasm) quite as well as it does to arrested development of organs. It belongs also to abnormal mechanical relation of organs one to another. On this tripod basis, it is essential for us when taking a view of neurasthenia to step back to our fundamental position and ask why various effects should occur in the protoplasm of cells, or in the arrangement of cells in organs, or in abnormal position of organs in relation to each other. Let us recapitulate certain points that have been made in these notes. We know in the first place that man when assuming the erect position brought out our mechanical structural weaknesses. We know also that cell construction, development of organs, and the position of organs, must depend more or less upon the stimulus given by hormones. Secretion of hormones depends upon dictation from the secretion of ductless glands; physical cells of ductless glands are influenced by toxins. We know further that toxins which influence the ductless glands abnormally are largely derived from the bacteria of the colon, more than sixty species of which have been described. Toxins produced by many of these bacteria are definitely known to be injurious to protoplasmic contents of cells of organs. Under conditions of modern civilization an abnormal proportion of various species of colonic microbes develops, and our intellectually arranged methods for oxidizing toxins or for conducting them through safe metabolic processes are not as yet placed upon

a scientific basis. Our methods for treating the neurasthenic patient are at present chiefly upon the basis of art at the hands of various artists, but we have as yet applied neither science nor art in the full sense of either word when dealing with our cases of neurasthenia. When making a diagnosis relating to this condition as a whole we must go back to the basis furnished by bacteriology. Bacteriology gave us the first light in treating surgical infections; then later it cast a light over the subject of contagious diseases and infections in general. It is now lighting up another vista in which we may observe that all human activities, and all organic cell construction upon which such activities depend are under the controlling influence of the microbe. Protoplasm is the fundamental constructive unit of organic life and is arranged in cell form for purposes of work. A microbe is the inimical unit of destruction for protoplasm other than its own. The higher organic cell being an amœba is in constant conflict with the microbe, the hereditary enemy of the amœba.

When taking up the subject of neurasthenia then, in a given case as a whole, or in various features of the case, we must begin from the standpoint of the bacteriologist. Neither surgeon nor psychiatrist, nor neurologist, nor hygienic faddist can intelligently comprehend the nature of any given case of neurasthenia, excepting from the basis of the bacteriologist's report. Toxins of colonic bacteria which produce the indols, skatols and phenols often occur in excess of the metabolizing efficiency of an individual. Such toxins interfere with the protoplasmic daily cell construction of ductless glands. Function being closely related to structure the secretion of these glands becomes abnormal in character and stimulates the secretion of hormones which are also not normal in character. All this work is under control by the sympathetic nervous system which is obliged to do work out of the ordinary and becomes

perverted or exhausted. Splanchnic neurasthenia is one of the results. This allows relaxation of peritoneal supports of abdominal viscera to occur, and the viscera begin to sag. With splanchnic neurasthenia there is also loss of efficiency of the secretions which carry on digestion. Enteric microbes then have in consequence a store of pabulum which is used for their own purposes. The well fed guests do not remain under a sufficient degree of control, and we have next the establishment of a vicious circle, toxins interfering with the processes of nutrition, and disabled processes of nutrition allowing bacteria to increase still further in the gastro-intestinal tract. Such a vicious circle occurring in parents must result in more or less injury to the developing ovum, causing abnormal cell construction with more or less arrested development of various organs of the fetus. The progeny of these parents present stigmata belonging to arrested development. Some of the stigmata may be very clearly in evidence, as we note in the decadent ear, high arched palate, and gun-stock scapula. We assume that an individual with arrested development of structures which may be observed, has *pari passu* some degree of arrested development of organs which are not readily observed. A child presenting features of arrested development of organs is commonly giving evidence of toxic cell injury which has been suffered previously by parents. This individual child as a variant from the mean type has a tendency according to the laws of mutation to recede from the dominant type. The treatment of neurasthenic conditions begins then from the standpoint of the bacteriologist's report, no matter whether it relates to a well constructed individual suffering directly from the influence of toxins or whether it relates to the progeny of such individuals, whose stigmata may render them even more susceptible to microbic influences than were the parents.

The treatment for neurasthenic conditions is divided into two separate and distinct parts. First, expediency measures for relief of troublesome symptoms. Such measures may be conducted by the surgeon, by the psychiatrist, by the neurologist, by the hygienist or by the suggestion fakir. The next part consists in controlling the output of toxins from the gastro-intestinal tract, and this latter part in the problem as a whole is the more important part. We may have an individual with inherited neurasthenic tendencies in whom the enteric functions are nearly normal. In such a case expediency measures for the relief of those symptoms which are due to defective organs, become of prime importance.

The wearing of corsets by women is one of the group of destructive habits which assist nature in control of over-population. (1) The corset by giving artificial support to the abdominal muscles throws the latter partly out of commission and lessens their tone because nature withdraws energy from structures which do not require a full normal quota of energy. (2) Relaxed muscle walls of the abdomen favor changes in position of organs, due to relaxation of peritoneal supports of viscera. (3) Intestinal stasis follows relaxation of supports. (4) Protoplasm of the individual is poisoned by toxins belonging to the condition of intestinal stasis. (5) Defective progeny results from toxic influences upon the protoplasm of the mother.

Before the age at which girls begin to apply corsets they run and play quite like boys, and are practically as strong in a physical way. They are as bright and as happy as boys on the whole. Shortly after the application of corsets their characters may change quite as distinctly as the feet of Chinese women change under restricting bands. The classic sculptors did not carve a "straight front" about the waist of Diana.

In a discussion at one of our medical society meetings, on

the subject of sterility in women, one of the speakers insisted that men were quite as much to blame as women. A much larger question than one of moral right or wrong in cases of sterility, is the question of imperfect development of the sex apparatus. Any one in our profession who has made ordinary observation in this field is familiar with the fact that most of that part of sterility which is due to anatomic defect, belongs to women. This refers not only to absolute sterility, but more particularly perhaps to the one child sterility. In this latter case one child suffices to bring out permanently any weak points in the generative system of the mother. There is no question of blame whatsoever. It is merely a question of nature's way of striking at a vital point when cultural limitations are being reached and it is necessary to limit population. It is possible that the chosen race will have women with fewer defects of the sort which result in sterility, but in that case nature will presumably have to fall back upon her standard resource of direct microbic destruction of the surplus of population, instead of striking with a concealed hand at the generative organs of the mother sex. Full physical development, out-of-doors work and plain food will take very many of our neurasthenic young women out of the sterility class and place them in a group that is capable of fairly vigorous motherhood. Nature seeks always to restore and to maintain a mean type. A girl rolling in the grass is more promising than a girl bending over a school desk, so far as the single question of future progeny is concerned. We are to assume that progressive defects of the generative apparatus are found more particularly in women because they customarily take far less exercise than men take. In congenital structural defects however we seem to have evidence that nature is regulating cultural development and bringing families to a close by striking purposely at the generative organs of women. The woman

in civilized life is commonly born with a disproportionate share of defects of generative organs which cannot be wholly remedied in the individual. Through the observation of care in developing herself physically, she may have children who receive the benefit of that exercise of wisdom and kindness on her part toward posterity. It is the rule however to exclaim, "What has posterity done for me that I should go to the trouble of having sense and happiness, just to please future posterity? On with the corset; let no one be afraid! Come, Charmian, the sofa-pillows,—a book! 'Would you like to read about movements of the heavenly bodies—the Heavenly Twins?' Yes! Now you may go."

Just as we see all about us great waste in various fields in economics, so we observe a great unnecessary waste in human life, although marked progress has been made. For instance, the death rate from typhoid fever has been reduced 54 per cent. since 1880 as an effect of looking after the sources of infection by our health departments,—and yet some 22,000 people still die yearly in the United States from this disease. The diphtheria death rate has been reduced 80 per cent. since 1880 because of the increased use of anti-toxin, and of methods for guarding against contamination, but 20,000 lives are still lost annually from this malady. Seventy-two Americans die every hour from preventable cause of disease. Although one may say these patients must die eventually, they present an economic loss prematurely. To balance the lessened death rate in some departments of medicine, we have an increase in others. The increase in the mortality rate from kidney disease since 1880 in the city of Chicago is 167 per cent.; in the state of Connecticut, 139 per cent. From heart disease in Massachusetts,—105 per cent. From apoplexy in the same state,—135 per cent. The increase of death from cancer in Philadelphia since 1880 is 79 per cent. From pneumonia in Chicago, 35 per cent.

These statistics are furnished by Professor Irving Fisher of Yale University.

Quoting further from the statistics of Professor Fisher. The cost of government of the city of New York is enormous and yet the city feels that it can only afford to expend on the Health Department considerably less than 2 per cent. of the yearly budget. In 1912 33,200 New York City people died from ordinary preventable disease. In most of the cities in America the ratio of Health Department expenses to total government expenses is less than 2 per cent., while in some cities the ratio of expense for police and fire departments was 23 per cent. in 1912. This gives us an idea of the importance that is placed upon the conservation of human life by our authorities, and is probably due to the basic fact that material prosperity is instinctively valued higher than human life. The death rate from tuberculosis has decreased 41 per cent. since 1880, from typhoid fever 32 per cent., from diphtheria 81 per cent., because we have concentrated our efforts particularly upon these diseases. The mortality from diseases that are not combated in this way increases rapidly; kidney diseases 73 per cent., heart diseases 84 per cent., apoplexy 34 per cent., pneumonia 24 per cent., and spinal meningitis 60 per cent. during the same period. Attention given to the diseases of children in particular has led since 1880 to a reduction of the general average death rate 32 per cent.

Doctor Welch, of Johns Hopkins, has recently reported from statistics that the expectation of life for every individual in this country has been increased by twelve years since the middle of the nineteenth century. The death rate has been lowered more particularly among the young; in fact, with them the greatest progress has been made, but the mortality in middle life is growing worse instead of better at the present time. This will be remedied when more complete study of

insidious chronic bacterial influences has been further advanced. We already know the factors which hasten senescence of protoplasm.

Life insurance companies have a very direct interest in collecting statistics relating to decadence, because it affects their capital. They take up the subject in a business way more effectively than it has been done in an humanitarian way of physicians, because of the precedence of property valuation. The Equitable Life Assurance Society has established a department relating to this subject. Quoting from the address of their Commissioner, Mr. E. E. Rittenhouse, before the International Conservation Congress on October 2, 1912, the following statistics were presented:

"Our birth-rate is declining. Over 200,000 infants under the age of five years die annually from preventable disease.

"Of the 20,000,000 school children in this country not less than 75 per cent. need attention for physical defects which are prejudicial to health.

"The alcohol and drug habits are constantly adding to the degenerate list of the death-roll.

"Diseases of vice are spreading, and we lack the moral courage to openly war against them.

"Insanity and idiocy are increasing at an alarming rate.

"Over 9,000 murders are committed every year in the United States. Only about 116 murderers are executed for these crimes. Our homicide rate is appalling—about 100 per million population, against 13 in Canada, 9 in Great Britain, 15 in Italy.

"The diseases of middle age are reaching down into middle life and below. Our vital organs are wearing out too soon. We have an increase of over 100 per cent. in thirty years in the death-rate from diseases of the heart blood-vessels and kidneys, including apoplexy. These diseases claim over

350,000 Americans annually. Sixty per cent. of them are preventable or postponable if detected in time.

"Cancer destroys nearly 75,000 lives annually. The loss from external cancer has increased 52 per cent. in ten years.

"Pellagra, a deadly plague, is increasing in the South, but it excites little or no public concern.

"Over 150,000 die annually from that preventable plague of tuberculosis. Nearly a million tuberculosis victims are constantly spreading the malady to the well, with virtually no official supervision or restraint.

"Over 1,500,000 people are constantly ill from preventable disease. Over 6,000,000 people will die from preventable cause during the next ten years at the present loss rate.

"The sum of $1,500,000,000 is a low estimate of the annual economic loss from preventable deaths.

"Our cities spend six and a half times as much money for preventing fire waste as they do for preventing life-waste, although the money lost from life-waste is six times greater."

From the same number of *"The Human Factor"* in which this report of Mr. Rittenhouse appears, we have a contrasting picture under the title, "Our Life-Saving Triumph of Panama," with the following statistics:

"Col. William C. Gorgas and his sanitary corps were charged with an extraordinary task. They undertook to drive from the pest-ridden seaports, jungles and marshes of the Canal Zone, the deadly fevers and other diseases which have scourged the Isthmus for 400 years. Their success has challenged the admiration of the world.

"They have transformed the world's greatest plague-spot into a zone of salubrity and health. They have given civilization most convincing proof that sanitarians can conserve human life even under the most appalling difficulties, when they are given money and the authority to do it.

"Every American should know the story of what has been done. From the statements and reports of Col. Gorgas we learn the following:

"Yellow fever has been banished—no case has occurred for six years.

"The annual deaths per ten thousand employees from principal diseases has been reduced under American control (since 1904) as follows: From dysentery 25.8 to 2.6. From tuberculosis 15.3 to 4.7. From malarial fevers 87.9 to 9.6. The annual malarial sick-list has been reduced from 821 to 187 per thousand employees.

"During the first nine years of French control the general death-rate was 241 per thousand annually. (That mosquitoes spread fevers was not then known).

"Under American control it has come down from 41.7 in 1906 to 11.0 in 1911.

"The average number of employees under French control was 10,200, and the deaths were 22,189. During nearly the same length of time under American control, the average employed was 33,000, and the deaths were less than 5,000. (This relates to dates, rather than inefficiency.)

"The general death-rate in Panama, Colon and the Canal Zone has been reduced from 48.3 per thousand population in 1906 to 21.4 in 1911.

"Could the Amercian people ask for any more convincing evidence that public health is purchasable?

"It is simply a matter of dollars and authority. The cost of accomplishing these wonderful results on the Isthmus has been about $2.43 per person annually in the zone affected. This is less than Key West spends annually for its fire department, where the death-rate (22.5) is higher than it is in Panama.

"Are the lives of the white and black people of the Isthmus

of any more value than the lives of the white and black people of the states?

"If Colonel Gorgas, under the most extraordinary difficulties, can conquer the diseases due chiefly to the mosquito and fly pest, why can it not be done in American cities where the obstacles to overcome are relatively trifling and the cost much less?

"If we know how to change the deadly swamps and jungles of Panama into healthful abodes for man, what excuse have we for not applying the same knowledge to its full extent to American communities?

"It is difficult to realize that Panama, the former pest-hole of the tropics, is now more healthful than a number of American seaport and river cities.

"Compare the Panama death-rate of 21.4 with that of Charleston, S. C. (1910 census), 29.7; Savannah, 26.9; Mobile, 23.0; Richmond, 22.6; Key West, 22.5; Memphis, 21.4; New Orleans, 21.3; Washington, D. C., 19.6, and with the many other wealthy and prosperous American cities where the death-rate is from 15 to 20. And there are scores of towns and cities with virtually no public health service.

"Colonel Gorgas has emphasized the fact and placed it squarely before the American people, that the excessive death-rate from preventable disease in our communities is nothing short of a communal crime."

We need not ask what Christian Science would have done at Panama where physical causes for disease were met by physical means for control of disease. Christian Science has its function and is useful in the field for which it is really adapted.

The laity do not seem to understand the nature of that opposition which physicians bring to bear against representatives of new medical cults. In law, if all lawyers were free

to neglect the past decisions of courts, it would be similar to allowing pathists of various new kinds to practise. If new schools of lawyers were to appear at intervals of a few years and were to go before the legislature and ask to be given freedom to practise, the legislative committee would say at once "No! property is involved. We cannot allow it." When pathists come forward, however, openly professing to disregard the decisions of established courts of medicine, the legislature says, "Give them a chance. Nothing but lives are involved." If property is involved, *No!* If lives are involved, *Yes!*

An instance of short-sightedness in trade is that of the oyster men, who know that placing oysters in brackish water simply improves the appearance of oysters, while it destroys their flavor and may introduce typhoid fever into many homes. The reason why they do not seem to care about the death of fathers, mothers, brothers and sisters is because these people are all impersonal to them and of small consequence in comparison with their personal oysters. The tissues of the oyster are charged naturally with salts in such a way as to maintain osmotic balance in salt water. When the oyster is placed in brackish or fresh water an endosmosis occurs on account of the presence of these salts and the tissues become distended with water. The puffy oyster now looks nice and plump, and white with coagulated albuminoids, but it is an invalid. The invalid oyster has dyspepsia. It cannot digest the typhoid bacillus and other microbes that it has fanned into its gills with other food. These living microbes are then sold to the public as perquisites along with a nice, white, plump oyster. A salt water oyster that has never been "plumped" is a delicious and safe food, but it does not catch the eye like the feeble dyspeptic invalid oyster. Oystermen complain about "sensational published notices" interfering with their business, and

yet the matter is entirely in their own hands. Sensational notices would not be published if grounds for them were not furnished. The desire for money is at the root of this one evil at least.

Every human question goes back to infinity, and we can only choose some middle ground for action. Let us take for instance the question of accident in relation to insurance companies. What is an accident? One of my patients, Dr. D., asked an insurance company to pay for damages received from swallowing a little piece of solder inadvertently when he was eating canned corn. The bit of solder made its way into his appendix and perforated it. It introduced an interesting accident insurance question, and yet that piece of solder which made a hole in the appendix, represented just as much of an accident as if the solder had been fired from a pistol accidentally exploded. A man who stops to get a drink at the well which contains typhoid bacilli has destruction of his tissue cells due to force expended by the typhoid bacillus which was accidentally drunk at that well. This destruction of cells is not basically different from the destruction of cells which occurred when a piece of solder went into an appendix, or from destruction of cells which results from a man being run over by a wagon.

The term accident is like the term heroism, in relating to time rather than to a specific effect. A hero jumps into the water and pulls out a drowning man quickly. The nurse who knowing her danger saves the life of a typhus fever patient and who dies from the disease later is not a heroine!

I would suggest the systematic employment of a metronome as an instrument of precision which should be used for aiding judgment of committees in charge of paying accident insurance or bestowing medals for heroism.

CHAPTER VI

When the time comes for me to leave this good world I shall be perfectly satisfied with work completed, if success can be counted in only three accomplishments: Professionally—in establishing the fourth era of surgery; Sociologically—in founding the doctrine of cultural limitations in its relation to man: And Horticulturally—in fixing the idea of orchardists making one hundred dollars per year per acre from nut trees grown upon every barren hillside in America which can be made to grow trees of any sort.

The conception of the fourth era in surgery came as a result of observations upon effects of the short incision in appendicitis, but its principles could not be formulated until some years later.

A study of the factors which would account for the doubling of flowers carried me into an appreciation of that continuity in nature which made the phenomenon clearly analogous to variations occurring in other forms of organic life; indicating the nature of limitations of culture which included man in its processes.

The idea of covering our barren hillsides with nut trees came as a natural result of experimental work in arboriculture, and the observation that valuable crops of nuts might easily be raised upon land that has been practically abandoned by farmers.

It is particularly difficult for a doctor to follow up any sort

of constructive work that lies outside of his first-duty responsibilities. He must keep his mind unceasingly upon his cases during the months of professional work. He turns cases over and over in mind during the day. The ideas which suddenly come to him in connection with a given case may save that particular patient's life, or at least avert some dangerous complication. "There!" says the doctor, "That's just what I need to do for that man. Glad I thought of it!" His mind must not be upon the stock market, or upon hobbies, or business, or troubles, but ever and always upon his cases. Cases alone—during months of work. Vacation time may be devoted to hobbies, business and troubles, but not the time which belongs to his professional wards. Every one should have some hobby however that will make him prance around the room with joy occasionally; otherwise he is dragging along through life and just waiting to finish a sort of duty job which he cannot avoid.

It is impossible in the midst of active practice to go back among one's old loves among the books, but the doctor can cast a loving glance at the backs of treasures in his library, to his Epictetus, or De Tocqueville, or Cuvier, or Horace, and remember how he enjoyed them once.

My impression is that at least two or three years of general practice are really essential for anyone who is to take up special work. In 1889, having determined to devote my professional work to surgery exclusively, it seemed best at the same time to plan for an ideal professional life and to have a hobby or two for greasing squeaks. There seemed to be pretty good evidence that we have only a short time to live on this earth, and if one cannot have an ideal time here, there's no telling when the next opportunity may come. My plan was in general to devote a certain part of the time to actual practice and a part of the time to recreation. The idea was obtained

from somewhere that a man can do a year's work in ten months but not in twelve. Enlarging upon one end of this idea, it seemed best to work continuously for about nine months and to play for three, but the time for continuous work was broken a little. The idea was to devote six days of every week very steadily to professional work, without regard for hours or resting, but the seventh day was to be used for purposes of rest, which consisted commonly during early days of a walking trip of twenty or thirty miles with some friend. The worse the weather the better we liked it. There is hardly a boulder of magnesian rock, or group of lepidoptera, haunt of cardinal-bird, hole of opossum, ledge of rattle snake, patch of gentian, or striped-bass channel within thirty miles of New York that we did not find on these resting days. We caught many a trout within city limits, and sometimes, by naughtily making friends with policemen, managed to shoot a few woodcock within city limits. The plan by the year was to take three months entirely away from actual practice and these three months were sometimes to be devoted to travel in order to visit clinics and see other men at work. They were to include time for experimental work, library work, or a run off on exploring expeditions to different parts of Europe, Asia, Africa or America, for the purpose of shooting, fishing and making observations in natural history (including folks). Incidentally it may be well to remark that some effort was required for determining the sort of natural history work that one can do in vacation time. There are two ways for going at it. The accurate, scientific observer seriously classifying his specimens, and making painstaking avoidance of error, gains the greatest degree of respect. The one who reads as he runs, getting together a good many facts of interest for associative purposes without being distressingly correct in detail, has the most fun. One sort of naturalist does not quite fully approve

of the other. While venerating and appreciating the accurate scholarly scientist, I could never quite feel that his type of mind had descended to me from heaven. There was more enjoyment to be had by nipping here and there while trotting along, after the manner of a deer,—and a deer has always been held to be a first rate sort of animal. That precedent settled in my mind the question whether it was right to do anything in a half-way manner. Three precedents of inestimable value to me when shaping a comfortable life course have been given by the deer with his nipping while running; by the guinea-hen with her habit of sitting in the middle of forty eggs, hatching all she can and letting the rest go; by the red squirrel with his life joy in all weathers. While following an arranged plan in life it seemed best not to be painfully conscientious about continuous work. Sometimes there was temptation to play hookey in the busy season for a week or so of shooting or fishing with friends, and sometimes during the vacation months I would assume professional responsibilities for a short time. The ideal plan of life naturally included the thought of having a wife and family at an early date. One might not originally consider this as likely to interfere with three months of vacation. After becoming a husband and father, it was indeed evident that summer months of vacation could not be expended in a life of the free wild rover, and the next best plan seemed to include the idea of a country place near the city where experimental work in horticulture would satisfy a natural love for the stimulus given by astonishing failures and disappointments. At the same time opportunity would be given for out-of-doors exercise. Sir Launcelot's Castle having been found and purchased, experimental work seemed to run along natural lines of cleavage toward the special study of trees. Such work would be constructive and its end-results of greater value to

the public than the results of time spent upon even such an excellent game as golf.

My prospective ideal life included the plan to retire from practice at the age of sixty-five. That would likely enough give me some twenty years for living a life of vision and of choice. These coupon years could be devoted to experimental work in surgery, in biology and in horticulture. There would be time for attending meetings of learned societies in all parts of the world. Incidentally one might during that time make a couple of million dollars to be applied in experimental work. While engaged in the responsibility of taking charge of cases of human life and happiness it has not seemed right to engage in any occupation which would bring a large income. In the course of exploring and noting the geology of localities, in vacation time, I have incidentally run across valuable ores. One bed of iron ore is of great extent. A much smaller bed which two of us found and reported, is said to have been staked, claimed and sold for several hundred thousand dollars two years later. We did not care to bother with it, for it meant close attention to developing the subject for a year or more. This other bed of ore has not been reported, and will probably not be found by others, because its discovery was due to an accident which is not likely to be repeated for a prospector. It can wait well enough until after I am sixty-five, because no one is much in need for iron meanwhile.

When first laying out plans for an ideal life the field of income was carefully looked over. Finding that a good deal of time would be required for securing all of the money in the world, it seemed better to take just enough for purposes of comfort, and let the rest of it go.

Looking over the field of fame, it seemed better to try to be good rather than great, for although this would require more effort, there was less to be feared from competition.

Placing a bit of horticultural work at the end of these notes is rather symbolic of my ideal life, which included the idea of developing an useful recreation which would run along indefinitely into that time in life when it becomes necessary to have aid for a feebling hand and shaking knee. When professional work is done, with its hurry and responsibility, this other work will fill the days of old age with comfort if not with inspiration. It places something ahead of a man right up to the last minute.

The history of my work in hybridizing nut trees is of interest as showing what unexpected trend may take one into fields of observation that he had not anticipated. In 1901 it was my ambition to collect upon the country place (at Stamford) all of the American trees and shrubs that could be acclimatized at that latitude. After devoting spare hours for a couple of years to getting together specimens and information, the subject had grown to such great proportions that a decision was made to confine the collection to nut-bearing trees and the conifers. After a couple of years more of experience this division had grown to such unwieldy proportions that it became necessary to confine myself to the study of nut-bearing trees, and this in turn grew so rapidly that one could readily perceive that an entire life might be devoted to the subject of hickories alone, and a man would not comprehend the subject fully even at that. After studying our various species of hickories, trying to collect species and varieties in order to cultivate the most desirable ones, it became apparent that the ideal hickory nut was not likely to be found in nature because nature had established mean types too securely. Plans were made for cross-fertilizing the flowers of various species and varieties that approached the ideal, in the hope of developing a large, thin-shelled nut of high quality and a tree that was prolific and precocious in bearing. Experiments in cross-pollenizing the

hickories and other nut trees were begun in 1905. A further study of the subject brought out the fact that varieties of hickories, like varieties of apples, were already so crossed that, in order to get an ideal nut and tree, it would be necessary to cross species rather than varieties. Incidentally I crossed different species of walnuts with different species of hickories, and found that the so-called open bud hickories and all of the walnuts seemed to accept each other's pollen, but at the present writing am not sure if true hybrids have resulted. If the crosses prove to be true hybrids the phenomenon had not been previously observed. While engaged in doing this work, experiments were made incidentally in attempts at crossing various hazels with each other, at crossing various chestnuts with each other and with their cousins the beeches and the oaks. It was found that this field offered many possibilities but required more work and tabulation of data than could be managed by a very busy man with complicated responsibilities, who was making the subject simply one for recreation. So far as I then knew, the subject of crossing nut trees had not been taken up systematically and deliberately by any one else, but it was found later that an occasional experimenter had included some species of nut trees in hybridization work. It may be that many other experimenters had deliberately set out to cross the nut trees, but at the time of the beginning of my experiments, data for guidance were not obtainable, and available literature did not indicate that others were engaged in this work. It was probably just about time in the course of progress for some of us to take up such a subject. As we progress in various fields of observation, one subject after another is taken up by mankind when the proper time arrives. If I return one hundred years from now horticulturists will perhaps be near the point of injecting into a twig some preparation of malic acid for the purpose of sensitizing ovules of a flower in such a way

that its protoplasm will accept pollen not only from another variety or species but from another genus or family. The reason why agriculture occupied itself first with annual plants was because of the immediate returns from investment. Then came development of fruit trees with fairly prompt and large return upon investment, and the fruit tree orchardist made a better income on the whole than the man who devoted himself to annual crops, the returns from which were comparatively small in proportion to the outlay of money, time and labor. The great engine of the nut tree was neglected because of the time required for such trees to come into profitable bearing. When the nut tree finally did receive attention in the due course of progress, nut orchards of selected varieties of walnuts, almonds, hazels and pecan hickories were found to give large annual returns upon capital invested. Selection by horticulturists had been made chiefly from choice specimens of trees which were found in nature and then propagated by grafting. The idea of developing ideal nuts of fine quality and great food value by a systematic method for breaking up nature's mean types and making new combinations which men want, has been left for hybridizers of the Twentieth Century. Nut trees under this treatment may be made to give a larger proportion of food per acre than may be obtained perhaps from any other crop. It certainly has been a great delight to be one of the first to suffer the disappointment, financial loss and hardships that are connected with hybridizing and cultivating nut trees. It is a joy to help prepare the way for others who can profit by one's mistakes and errors. All of the nuts resulting from my efforts at cross pollenizing during the first year of work were lost. Many of them were lost before being collected, because I had not realized how well the squirrels, white-footed mice and other animals which are not so very dumb knew a good thing when they saw it. After the nuts had been collected some

of them were stored improperly. They mildewed or dried out, and most of the specimens which were not mildewed were carried off by rats and mice which found their way into the boxes where specimens were kept. During the next year of hybridizing, notwithstanding the application of many protective devices, it was nevertheless found that rodents and weevils adapted themselves to my devices with wonderful celerity, and practically all of the resulting nuts were lost, although a few sprouted and grew. I am not afraid to pit my intelligence against that of another man, but I take my hat off to a mouse. Many of the valuable specimens which grew were destroyed later in so many kinds of ways that my sense of humor came to the rescue of disturbed feeling. Nature has learned the lesson for growing ten thousand seeds when only one is apparently required, and that showed the difference between nature and me. In this particular year particular attention had been devoted to the chestnut, for the reason that the chestnut blight threatened to dispose of all our native American sweet chestnuts. Pollen of the American sweet chestnut was placed upon pistillate flowers of certain species which resisted the blight, but crosses were made chiefly upon the chinkapin. At the end of the season there were several hundred beautiful nuts of the cross between American sweet chestnut and chinkapin, and in order to prevent autumn sprouting they were buried deeply in the sand. When taking them up in the following spring they were found to have sprouted nevertheless, and on account of being buried so deeply had mostly perished. Only five nuts sent out sprouts from adventitious buds, but that was a "new thing" for chestnuts to do, and the accident furnished a note of value for botanists. The following year's work resulted in my having several hundred specimens of crossed nuts, and of these some were placed in stratification boxes and others were planted near the surface. The ones

planted in stratification boxes all dried out and perished, and the ones planted near the surface were all frozen. This experience showed incidentally the way in which nature had limited indigenous distribution of the chinkapin. The nuts of this species naturally sprout as soon as they have fallen in the autumn. In their southern habitat they grow sufficiently to lignify securely for winter protection. Farther north, when sprouting in the same way, the shoots do not lignify sufficiently for winter protection. This explained nature's way for checking distribution of that particular species and furnished another note of value for botanists. Few men can realize, unless they have had direct experience, the number of accidents that may happen to seed between the time of its development and the time of its appearance as an established young tree. When protecting the flowers of the trees that were to be crossed by covering them with paper bags, it was found that those bags likewise protected aphides and other insects against their natural enemies. The result was that parasites had sometimes increased to such an extent under cover of the bags that flowers and leaves were entirely ruined —an object lesson relating to the value of birds. It became necessary to devise a means for avoiding this accident (which was finally accomplished). In order to protect flowers against accidental fertilization by their own kind of pollen, considerable experience had to be gained. The difficulties in protecting the nuts while they were still upon the trees were considerable. Squirrels would cut off the tape which marked branches of hybridized nuts, besides cutting off the nuts themselves. When nuts were encased in wire gauze cages upon the tree, squirrels would cut off the branches, allowing them to fall to the ground. Squirrels, white-footed mice, field mice and pine mice would then manage to get the nuts out from these cages. A habit of the grey squirrel, which I had neglected to keep in mind,

resulted in ruining all of the nuts upon two hazel bushes in which nuts had been hybridized with pollen from an Asiatic species. Wire netting had been arranged around the bushes, leaving a doorway on one side. Steel traps were placed in the doorways, attached to long chains. In the morning there were two squirrels in the traps, and these squirrels, frightened by the snapping of the traps upon their feet, had immediately followed squirrel nature by climbing to the tops of the bushes, dragging trap and chain along, and this they had kept up so continuously during the night that they had broken every branch and had knocked off every single nut from the bushes. Although the culprits had been captured, they nevertheless accomplished unhappily the same result as that which formerly had followed their joy. Early in the summer birds would sometimes untie string that was used for marking hybridized nuts upon the trees. Their motive was undoubtedly utility,—for nest building purposes. Red squirrels on the other hand would often cut off these label strings in a spirit of pure mischief. I am not psychologist enough to state definitely that such was the motive, and can only remember that as a boy I used to do things which the red squirrel now does. On that basis one may trace the psychology of the red squirrel, and find that some of his acts belong to pure mischief. Even after nuts had finally been collected, protected through the winter, planted, sprouted, and set out in the nursery rows, troubles were not ended. For instance, it was found one morning that in an entire row of hybridized hazel nuts the field mice had destroyed each and every one of them in a single night, after they were sprouted and set out. In another row of crosses between the pecan hickory and one of the walnuts, the crows, having found the sprouted nuts, destroyed them all in a single day. Many of the young trees from hybridized nuts seemed to be particularly attractive to various insect enemies. They

were destroyed by ants and beetles, and even when they had been carried through their first winter successfully, it was found in the following spring that field mice and pine mice working below the ground had cut off the roots of very many of them. It was necessary to develop elaborate methods for protection adapted to almost every separate kind of nut and its young tree. One had also to develop methods for preserving nuts properly through the winter, and to acquire knowledge about their sprouting habits. Nuts, like the seeds of most wild trees, have a tendency to wait until conditions of warmth and moisture are peculiarly right before they sprout. They are very different from docile cultivated seeds. Many hybrid nuts of different kinds were lost entirely through their failure to sprout, or through my finally managing to get them to sprout so late in the year that shoots did not lignify and were killed in the winter. There seemed to be good reasons why the hybridizing of nut trees had not been done by savages and barbarians since the early days of history. It required several years of experience in the preparation of flowers for crossing, collecting pollen from a distance, keeping it viable, looking after the fertilized flowers, marking them and caring for the resulting nuts and young trees subsequently. There was such opportunity for elaborate mistakes on the part of a beginner that my delight has really been very great in finally developing methods which are successful. Anyone who becomes discouraged instead of getting stubborn and laughing over accidents will drop the subject after two or three years of continuous failure and misfortune. My speculative instinct is at last to be gratified. Some of the hybrid trees will bear prolifically and at an early age, others will hardly bear at all. Some will make wonderful timber, others will make worthless wood. Some of the nuts will be of no value, others will be of considerable value, and a certain percentage of them will

be of enormous value. There will be many curious forms; there will be nuts which are too large to be desirable or too small to be desirable,—too thin-shelled or too thick-shelled. There will be trees of great beauty and trees that are ugly. When crossing trees in this way one creates hundreds or thousands of new trees of kinds which have never before been seen by anybody. Some of the trees will resemble one or the other parent. Some will combine the qualities of both parents rather evenly. Some will give freak results. Among the hundreds of new kinds of trees which are developed by crossing the flowers we preserve and propagate by grafting the few which are found to be of great value. Hybridizing mixes up kinds which nature has carefully kept apart for ages—we dynamite nature's plans—but grafting perpetuates a desirable variety which we have created and wish to preserve. The scions from any desirable tree are grafted into stocks consisting of allied species or varieties upon which the desirable variety proceeds to grow. The scion of a desirable variety perpetuates itself in kind, no matter what the nature of the stock upon which it is grafted, so long as the stock is of a species or variety which accepts the scion. Crossing (hybridizing) consists in artificially bringing two sexes of allied species or varieties together. The result is that gametes or germs of the seed then consist of elements which are made up of characteristics of both parents which have been brought together artificially by placing the pollen or male element of one kind upon the female flower of another kind. When these germs sprout they make strange and new forms of trees, for the reason that the two sexes have been brought together for man's purposes and not according to nature's plan. Nature's plan is to preserve the mean type, while man's plan is to break up the mean type and mould types together for his own use. The sap of the root of the stock has no power

to change to any important degree the character of the graft which has been placed upon that stock. If a given stock were allowed to throw out its own branches as well as branches from the graft, then the tree would furnish two kinds of nuts, those of the stock and those of the graft. In order to avoid this we cut off all of the branches from the stock as fast as they appear, throwing all the strength of the tree into the engrafted scion of a kind which is to be multiplied and perpetuated. Incidentally it may be worthy of remark that grafting of nut trees in the north has been so difficult—for reasons known to biologists—that most of the horticulturists had given it up in despair. As a matter of luck I happened to think of the idea of applying the principle of the balanced aquarium for keeping grafts supplied with fresh water. If this method is as successful as present experiments would seem to indicate, it opens a new way for managing some refractory species. Had I not been interested in fish this idea of the balanced aquarium would not have been introduced into horticulture perhaps.

When the scion has made branches, scions may again be cut from these branches and distributed still more widely upon other stocks. Millions of trees may descend from one original graft—perhaps hundreds of millions—as in the case of some popular peach, pear, or apple. Grafted progeny from a parent tree seem to live only about the length of time that the parent tree would naturally live. For instance, if the Baldwin apple remains as a popular variety for two hundred years and then begins to die out over the entire range in which its grafts have been disseminated, it would seem to indicate that the original Baldwin tree would probably have lived about two hundred years under normal circumstances. The protoplasm which went to make up that variety, we will say, has inherent strength capable of maintaining that variety in many lands

and under varying conditions, and yet, when the kind of protoplasm for maintaining the Baldwin variety reaches its natural age limit and becomes senescent, the variety will begin to decline and fade away. If this is a true observation, as seems to be recently agreed upon among horticulturists, it explains why certain varieties of fruits which were famous in former days are not found to-day. (Nations of people follow a similar law.) We shall have to keep making new selections for grafting purposes, but hybridizing will give us an enormous field from which to choose.

There is always the weather question to be taken into consideration when one is engaged in any branch of horticulture. As an example, there occurred to-day one of the heart-breaking shocks which come into our experience. Last night there was a remarkably heavy May frost. Newly ploughed ground was frozen to a depth of an inch. This weather has been preceded by three days of abnormal heat, so that all vegetation had made great new growth, the ground being very moist. On going out to the country to look over a large lot of my newly sprouted hybrids (or stereochemic parthenogens) between the butternut and the pecan hickory, and between the butternut and an Asiatic cousin, the Pterocarya, I found that every one of the sprouts had been frozen clear down to the ground and beneath the ground. Apparently shoots of the entire lot were killed last night. Now let us see just what this means. My ambition when making these hybrids was to "pull the thick shell off from the butternut," in order to secure allied forms with thin shells, high quality and great food value. Among the new hybrid trees some would probably have remarkable value for timber, in addition to their utility for increasing the food supply. I had pictured to myself the developing of certain new forms (in this particular lot of hybrids) which would be of such value that thousands of acres of land in different

states would be devoted to propagating them. In other words, the inspiration was to establish a benefaction for the world and at the same time gratify that speculative instinct which is incidental to making new kinds of trees spring up at the touch of one's hand. The details in connection with making this particular lot of lost hybrids were these. In the first place it was necessary to obtain pecan pollen in the previous spring from some particularly desirable and hardy variety of pecan tree, and for this I had to send to my friend Risien, in Lampasas County, Texas. In order to find a tree of the Pterocarya from which pollen could be secured, correspondence with botanists all over the country had been necessary in order to locate a specimen of this Asiatic species in some private collection, one was finally located on Dana's Island (Long Island, N. Y.). The gardener of the estate sent me pollen from that tree. Having received the Pecan pollen from Texas and Pterocarva pollen from Long Island, the next thing in order was to place this pollen upon pistillate flowers of a butternut tree. Selected female flowers had been covered with paper bags in order to prevent them from becoming fertilized with pollen from staminate flowers of their own tree. Each pistillate flower had to be separately pollenized by hand and the bag put back until fertilization by the foreign pollen had taken place. When the bags were removed, it was observed that most of the foreign pollen had "taken," and a fine lot of nuts were under way. This part of the work having been done, the nuts were left to themselves for about three weeks, but on looking at them again it was observed that practically every one had been attacked by the walnut weevil (Conotrachelus). About half of the little nuts had ceased growing and the rest were more or less crippled. It became necessary to cover each weevil hole with a bit of grafting wax in order to smother the larva within. Fortunately this succeeded, and per-

haps one-fourth of the entire lot of cross-pollenized nuts went on to maturity. As they approached maturity, each nut or group of nuts was surrounded with gauze, to protect them from squirrels and to prevent their falling to the ground and becoming lost. So far everything had gone fairly well. During the winter the nuts were planted in wire cages made for the purpose, in order to keep the precious treasures away from rodents. One warm day this spring, when examining the hybrid nuts to see if any had sprouted, it was found that all had sprouted too well, sending a long and very fragile sprout deeply into the ground. This made transplantation hazardous, because of the danger of breaking the fragile roots. My men, however, succeeded in transplanting them all to permanent sites safely,—after three or four days expended in careful work. Each sprouted nut was protected by wire netting, to keep off mice and crows. After the expenditure of all this care, thought and labor for a year,—after the emotions of exaltation over the prospect of so many new creations (with varying intercurrent hopes, fears and longings)—I went over the fields this morning to find the entire lot apparently destroyed by a single night of abnormal freezing weather in May. A big lump came into my throat. Had I been a woman there would have been tears, but a man could only swear instead. As a gentleman, more or less refined, I did not swear aloud in the presence of my employees, but kept it all to myself, —quietly using however the same words and the same attitude of mind toward the subject as would have been applied by one more rude in his manner of speech. As a rule disappointments are kept to myself, but when this one was mentioned, some people who were pretty close laughed heartily and said that it was better to stick to practical things. It was suggested that an experimenter ought to have had enough shocks by this time. As a matter of fact, one needs to have a certain degree

of lack of sense in order to be persistent enough to accomplish anything. This instance is only one of many in the experience of all of us who try to do new things in horticulture. Relating the history of successes and failures would require more space than one would care to give to the subject in these notes. In fact, the thought of introducing details of the subject of hybridizing would not have come into mind at all excepting for the freeze last night. My secretary said this was a characteristic part of real life which ought to be included in the notes. It is difficult for us to know what part of any personal experience is really interesting to others. Sometimes when joining my old guide in the woods, the conversation would be something like this:

"Did you run across anything interesting in your trapping last winter?"

"No, nothin' special."

"Did you trap any bears?"

"Yes, twenty-six! Food was kind o' scarce in the fall and I found one valley 'bout fifty miles from here with a lot of roundwood berries, where the bears had all got together. They got fat and denned up near-by, and I had pretty good luck with them this spring."

"Did you have any trouble with any of them?"

"Well, no. Nothin' particular! There was one old she-bear got a whack at me and broke my leg, this 'ere outside shin bone—and laid me up for six weeks."

"Wasn't that interesting?"

"Well, no, not in particular. I was about done with all the work and not much to do but to lay around anyhow. Joe the Injun looked after me."

"Did you have any other close calls with a bear that got mad?"

"Well, no! Let's see! There was one that warn't mad;

he was only fearless hungry when he come out in the spring. I was asleep in the cabin with bacon and things hangin' near me. He smelled the bacon and come into the cabin. When I woke up he was standin' on my legs reachin' for the bacon."

"What did you do?"

"Well, I reached round kind o' keerful and got hold of my rifle. I couldn't see very well in the dark, but fired a shot that I thought would come pretty cluss to hittin' him in the right spot."

"Weren't you afraid that he would grab you if he was wounded?"

"Well, perhaps! But I knew he would git off my legs anyhow and I could git out quick through the place he came in at."

Now all this was uninteresting to the man who was accustomed to the routine hardships and experiences of woods life, and he would not have thought of speaking about any of it had I not drawn him out. It is difficult then, to know just what in one's own experience is really interesting to others.

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