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A Further Contribution to the Study of Bacilluria in Typhoid Fever and Its Treatment with Urotropin.

BY

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BOSTON

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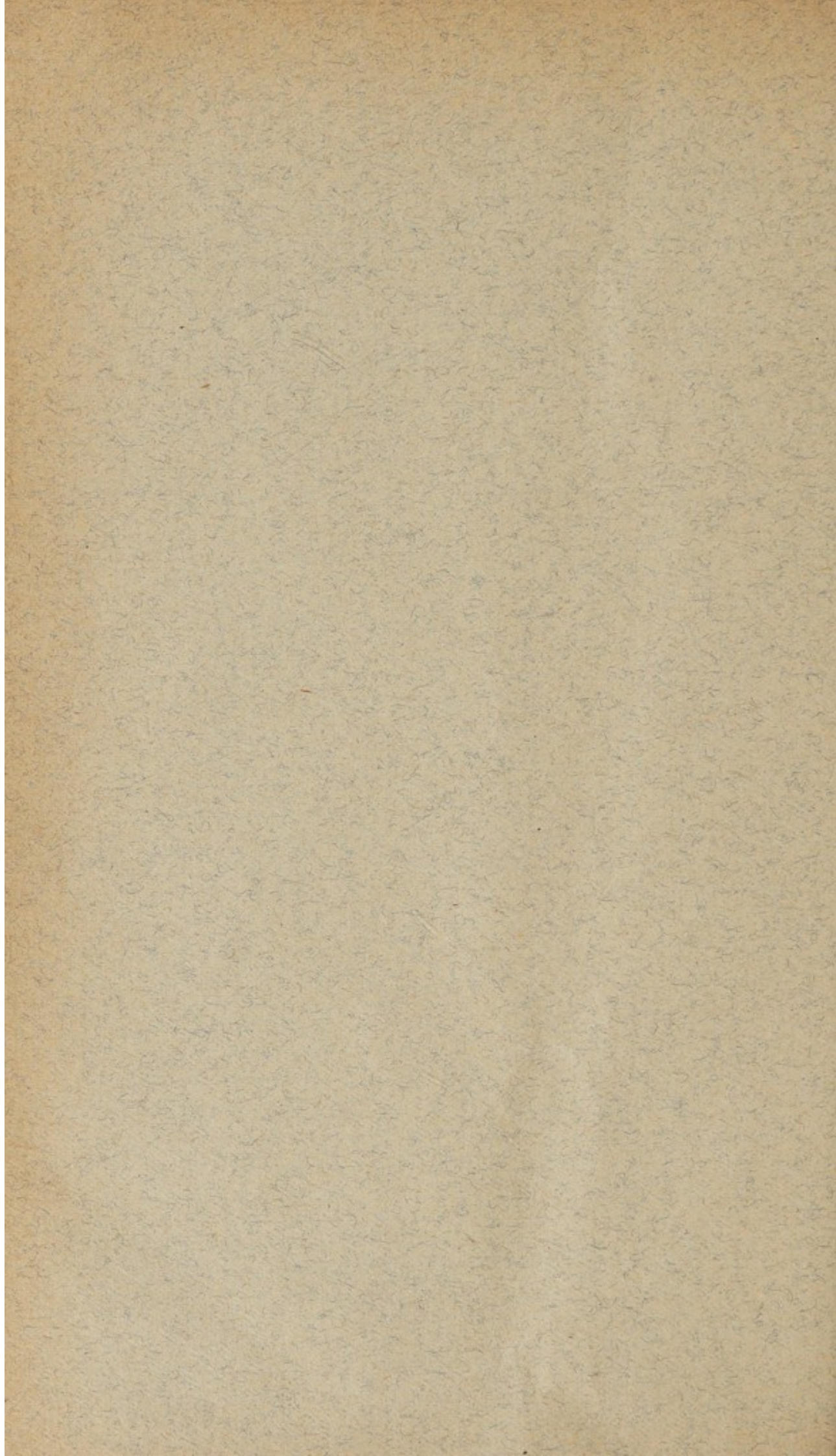
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A FURTHER CONTRIBUTION TO THE STUDY OF BACILLURIA IN TYPHOID FEVER AND ITS TREATMENT WITH UROTROPIN.*

BY CHAS. D. EASTON, M.D., BOSTON.

THE literature on the subject of bacilluria in typhoid fever and the use of urotropin in its treatment, up to the year 1899, may be found in Dr. Mark W. Richardson's paper in the *Journal of Experimental Medicine*, vol. iv, No. 1, 1899. I have tried to bring the subject up to date.

Gwynn¹ treated successfully 5 cases of cystitis by irrigations with corrosive sublimate 1-50000. Two cases were given urotropin. In one the number of bacilli was much diminished but they were still present at the last report. In the second case they finally disappeared after seventeen days. In a later paper² he had 10 cases, in 3 of which the bacilli appeared in the urine before the Widal reaction. He thinks this may be of value in diagnosis. Stress is laid on the importance of urinary disinfection. Urotropin was tried in two of three cases without effect. He prefers mercuric chloride irrigations 1-50000. Further work on the subject³ seems to strengthen his former views. He says milk of lime and chlorinated lime are of some value. He also tried formaline, but thinks it is too expensive to come into general use.

Schichold⁴ out of 17 cases found bacilli present in 5, but thinks that the bacilli are excreted

*Read at the semi-annual meeting of Suffolk District Medical Society, April 29, 1905.

only when the kidney is diseased, beginning immediately as soon as the kidney is affected.

The observations of Walker⁵ and Neufeld⁶ agree with others and both advise the use of urotropin. Walker cites an instance of a well which was infected by the urine of a trooper returning from the army. Twelve persons took the disease.

Horton-Smith⁷ found bacilli in the urine as early as the thirteenth day of the disease, and as late as the fourteenth day of convalescence, and says that they may persist for years. He reports in all 45 cases with 11 of bacilluria. Urotropin was tried in 10 of these and all were cured, but in some cases the bacilli returned and urotropin had to be given again. His idea is that in cystitis the organisms work down into the wall of the bladder.

Lewis⁸ examined 45 cases, but only found bacilli in the urine of 1 case. He speaks well of urotropin and advises its use.

Loida⁹, Schuder¹⁰, Gehrmann¹¹, Klemenko¹², Vincent¹³ and Jacobi¹⁴ agree with other investigators as to the occurrence of bacilli in the urine of their cases. Jacobi reports 643 cases, 27.8% of which had bacilluria. He did not use urotropin, and considers it of little value because relapses occur and the bacilli return in the urine. Vincent in cystitis uses potassium permanganate irrigations. No other treatment is mentioned in his paper. Neither Klemenko or Schuder used urotropin.

Richardson¹⁵ reports the finding of the bacilli in the urine as early as the eighth day, while in other cases they were not present until the forty-second day of the disease.

Drake-Brockman¹⁶ writing on the practical application of urotropin as a urinary antiseptic

has seen no untoward results from its administration and thinks it has not received sufficient notice in England.

Ehrmann¹⁷ used urotropin in a number of affections with success. One case of cystitis was irrigated with silver nitrate and severe hemorrhage followed. Even after bladder irrigations with boracic acid and silver nitrate a cure cannot be expected until urotropin is used in addition. Gordon¹⁸ reports a case of cerebral syphilis in which urotropin was used and supposed to have caused hematuria. Cammidge¹⁹ concludes that by the systematic use of urotropin in all cases the very real danger from the urine which is so frequently overlooked may be avoided.

Brown²⁰ reports 2 cases of typhoid which he treated with urotropin. One after taking 10 gr., *t. i. d.*, for two days had painful micturition, and after five days had blood in the urine. The other after 10 gr. for seven days had hematuria. Urotropin was omitted and recovery took place in forty-eight hours. Urotropin was given in 13 out of 82 other cases and there was no trouble except in one which was also having turpentine. He believes that the urinary discomfort which precedes hematuria should be considered a danger signal. Millijan²¹ gave 5 gr., *t. i. d.*, and in seven days produced pain in the bladder followed by hematuria. Urotropin was stopped and ill effects ceased in two days.

Griffith²² gave 10 gr., *t. i. d.*, and next day there was urinary pain, after ten days backache and swollen eyelids. There was evidently no hematuria in this case. Urotropin was omitted and untoward symptoms ceased after three days. Forbes²³ also reports a case of pain in bladder and hematuria after 10 gr., *t. i. d.*

Schumberg²⁴ tries to prove that because

solutions of urotropin outside the body do not always kill typhoid bacilli that it is of no value internally. Clinical experience, however, seems to disprove this theory.

P. Fraenckel,²⁵ Orłowski²⁶ and Busing²⁷ used urotropin with good results. Fraenckel did not make bacteriological examination of the urine of his cases, but gave the drug as a routine measure in the later stages of the disease.

Goetzel and Salus²⁸ and Biss²⁹ consider urotropin an active antiseptic, especially against typhoid bacilli. Biss has seen 2 cases of hematuria, but thinks it only necessary to be careful in its administration.

Fuchs³⁰ found typhoid bacilli in 16% of cases not treated with urotropin. Of 40 cases in which the drug was given only 1 showed bacilluria. He is of the opinion that even where no bacilli can be found microscopically numerous colonies are obtainable by cultures, and when urotropin is discontinued the bacilli may return in the urine. He thinks the drug must be commenced before the fever subsides, and continued into convalescence to the latest date at which bacilluria is liable to develop.

Knox³¹ advises the treatment with urotropin of all cases of typhoid where the urine is turbid. In no case has he seen any ill effects or discomfort. He considers it of great use and importance in the treatment of typhoid fever in the army.

In an article in the BOSTON MEDICAL AND SURGICAL JOURNAL for Feb. 5, 1903, Richardson, without giving the literature, sums up the knowledge on the subject of bacilli in the urine of patients sick with typhoid fever and draws the following conclusions:

“1. Typhoid bacilli are present the in urine of

about 21% of individuals affected with typhoid fever.

"2. The bacilli when present are usually in pure culture, and their number is frequently enormous: many millions in each cubic centimeter of urine.

"3. The invasion of the urine by the bacilli takes place in the later stages of the disease. Unless measures are taken to remove the organisms they persist frequently for weeks, occasionally for months, and rarely for years, and thus constitute (a) a danger to the patient himself, cystitis and possibly orchitis and epididymitis. What is much more important, a grave source of danger to the public health.

"4. The necessity for the rigid disinfection and supervision of typhoid urine is apparent.

"5. In urotropin we have a drug which will, in the vast majority of cases, remove typhoid organisms from the urine, not only in the cases of simple bacilluria but also in those in which cystitis has resulted. Very rarely an obstinate cystitis may require the use of vesical irrigations. Very infrequently a case will be seen in which the use of urotropin is followed by hematuria. In such cases the drug should be omitted and irrigations of the bladder substituted.

The subject in its relation to the public health is of the utmost importance. In any opinion, it should be a fixed rule, and one rigorously enforced, that no typhoid convalescent be discharged as well until his urine has been proved permanently free from bacilli. In this way only can we prevent a considerable percentage of our typhoid convalescents from becoming unsuspected foci for the further distribution of the disease."

In order to demonstrate the practical value of the above conclusions, during the past year,

under Dr. Richardson's direction, and with the consent of the visiting staff, all cases of typhoid fever treated at the Massachusetts General Hospital have been given 5 gr. of urotropin three times a day as a routine measure throughout the disease. This was omitted as soon as convalescence was established. In 46 of these cases after the drug had been stopped from six to ten days, and before the patient was discharged, repeated examinations of the urine were made. The specimens were obtained under as nearly as possible aseptic conditions. At first cultures were made on agar plates but it was soon found that the colonies were so few, in many cases none at all, that it was only necessary to use the agar slant in the culture tubes. In no case of this series was there any growth of typhoid bacilli and all the specimens appeared perfectly clear.

The subsequent history of one of these cases was of particular interest. As soon as the temperature became normal urotropin was omitted. The urine was examined and no typhoid bacilli found. A few days later a relapse began, the urine became slightly cloudy and showed the presence of some cystitis. Large numbers of typhoid bacilli were found in the cultures, urotropin was resumed and he was discharged from the hospital with a clear urine free from bacilli. About one week later patient reported and was found to be suffering from a swollen testicle. There was a slight cystitis and bacilli in the urine. Urotropin was again given, 5 gr. three times a day, and five days later the cystitis and bacilluria had disappeared. This case would seem to agree with the theory³² that orchitis, epididymitis and prostatitis, not uncommon complications of typhoid fever, are ascending

infections from the urine containing typhoid bacilli.

In order to determine whether or not the effects of urotropin were permanent, about thirty patients who had been sick with typhoid and treated with urotropin one year previously were sent for. Of this number only ten reported. The examination of the urine of these cases was negative for typhoid organisms.

Coleman³³ after a careful study and review of the subject concludes that the administration of urotropin may be, but rarely is, attended by toxic effects. I have examined the records of all the cases of typhoid fever treated with urotropin at the Massachusetts General Hospital, comprising 486 cases.

Nearly all received from 8 to 10 grs. three times a day and some 15 gr. three times a day. In some cases the drug was given only two or three days a week, others had it daily. There were 3 cases of painful micturition, and 2 of hematuria. In several cases a few red blood corpuscles were found in the microscopical examination of the urine. These all cleared up within a day or two after the withdrawal of the drug. It would thus appear that the danger from toxic action is practically very slight.

It is hardly necessary to-day to call attention to the great need of a simple and effective means of rendering the urine of typhoid patients harmless to themselves and the community. In 1898³⁴ about one fifth of the soldiers in the national encampments in the United States developed typhoid fever. Among 107,937 officers and men there were 20,738 cases, 19.26%.³⁴ It is believed that in these cases the urine was an important factor in the dissemination of the disease.³⁵

The additional conclusions which it would seem justifiable to draw from these investigations are:

1. Although urotropin may, in very rare cases, cause uncomfortable symptoms it does not invalidate the use of the drug.

2. Urotropin is of less value in cases where an active inflammation of the bladder has occurred.

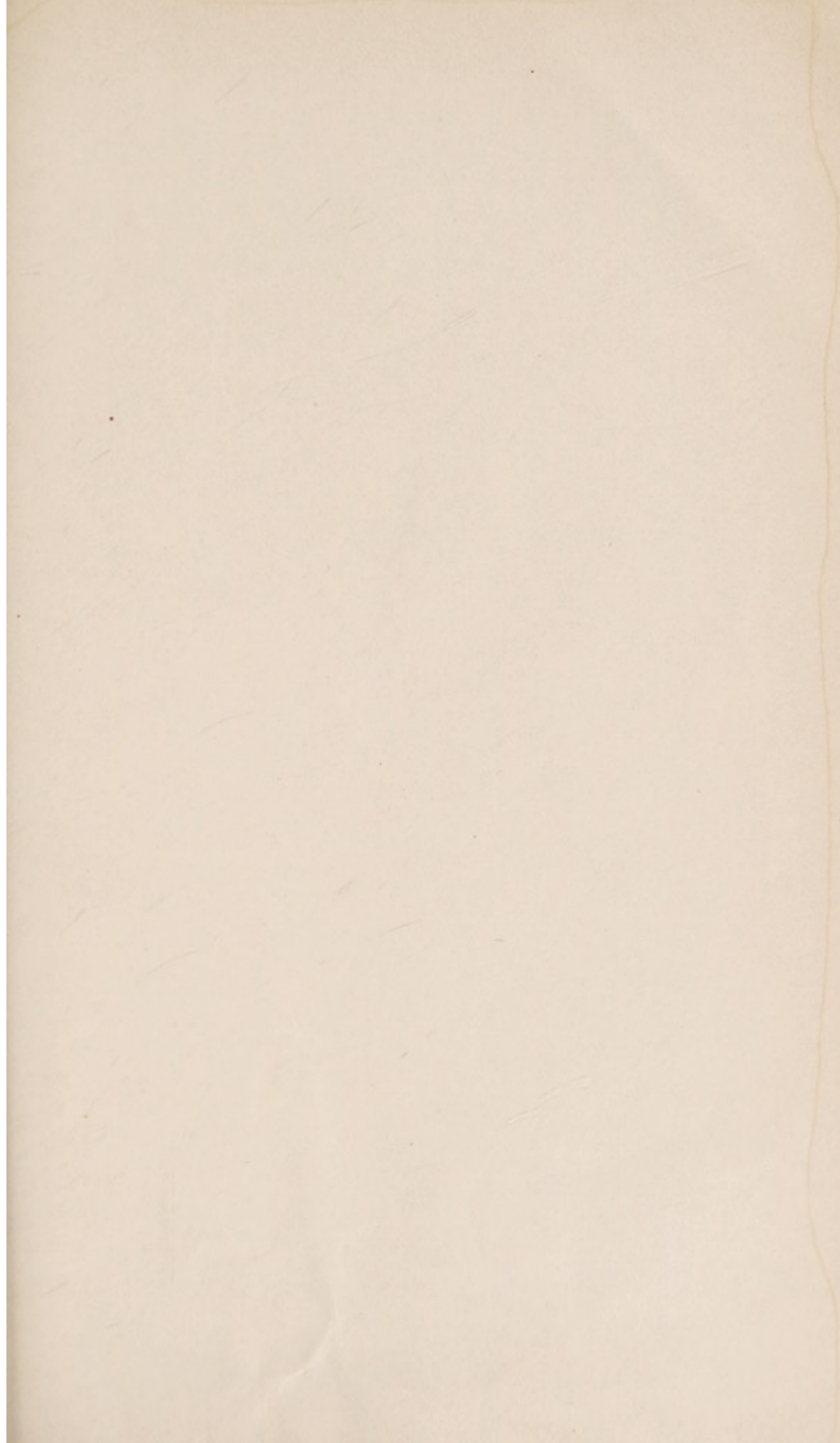
3. But, as far as this series of observations goes, the moderate use of urotropin throughout the disease prevents cystitis.

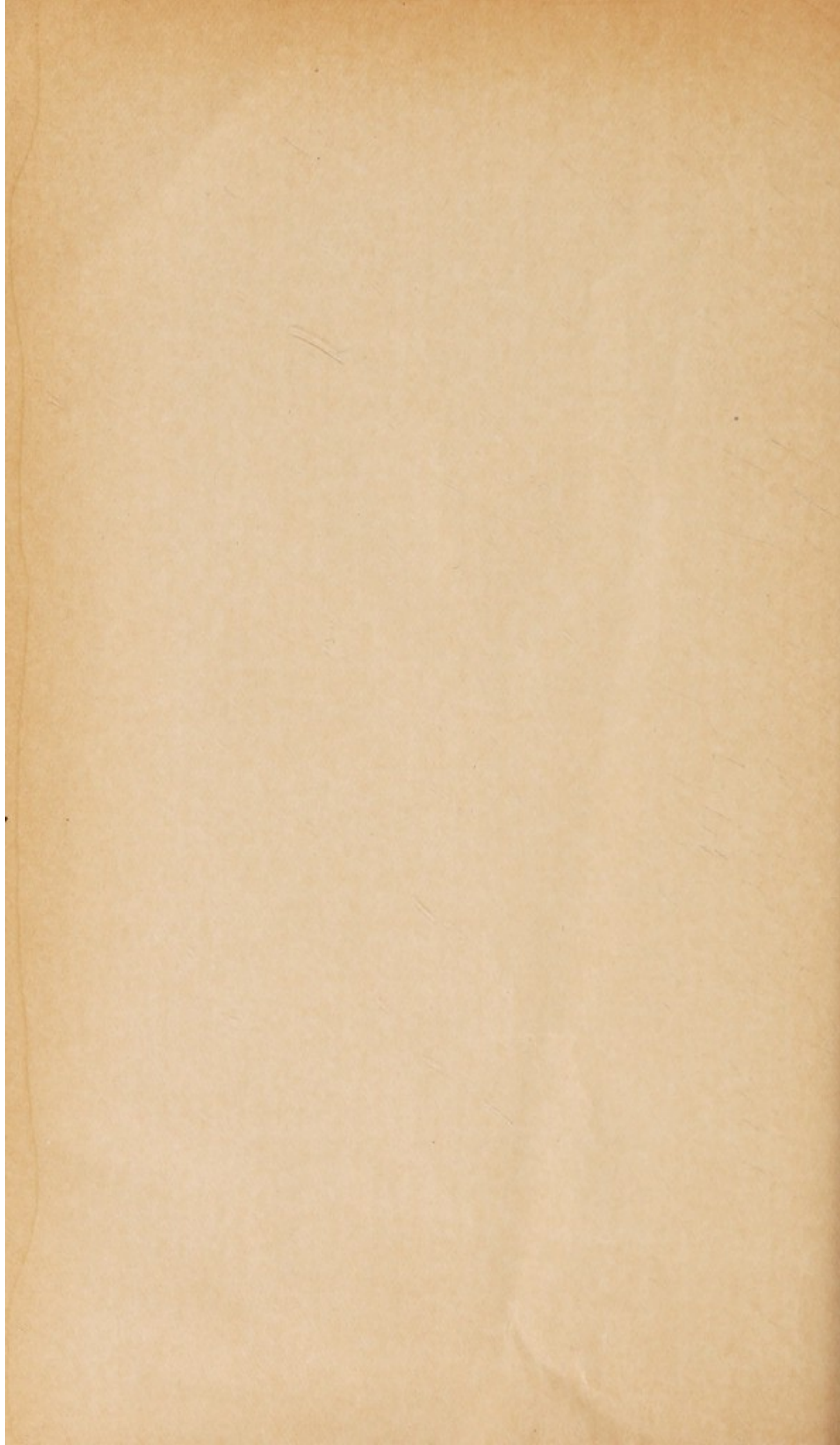
4. Finally, the routine administration of the drug in all cases of typhoid fever would seem to be strongly indicated, for by such a course of treatment bladder complications are avoided, the urine made innocuous to those brought in contact with the patient, and it is possible to discharge patients who have been sick with typhoid fever in full belief, that, as far as the urine is concerned, they will be harmless to the community.

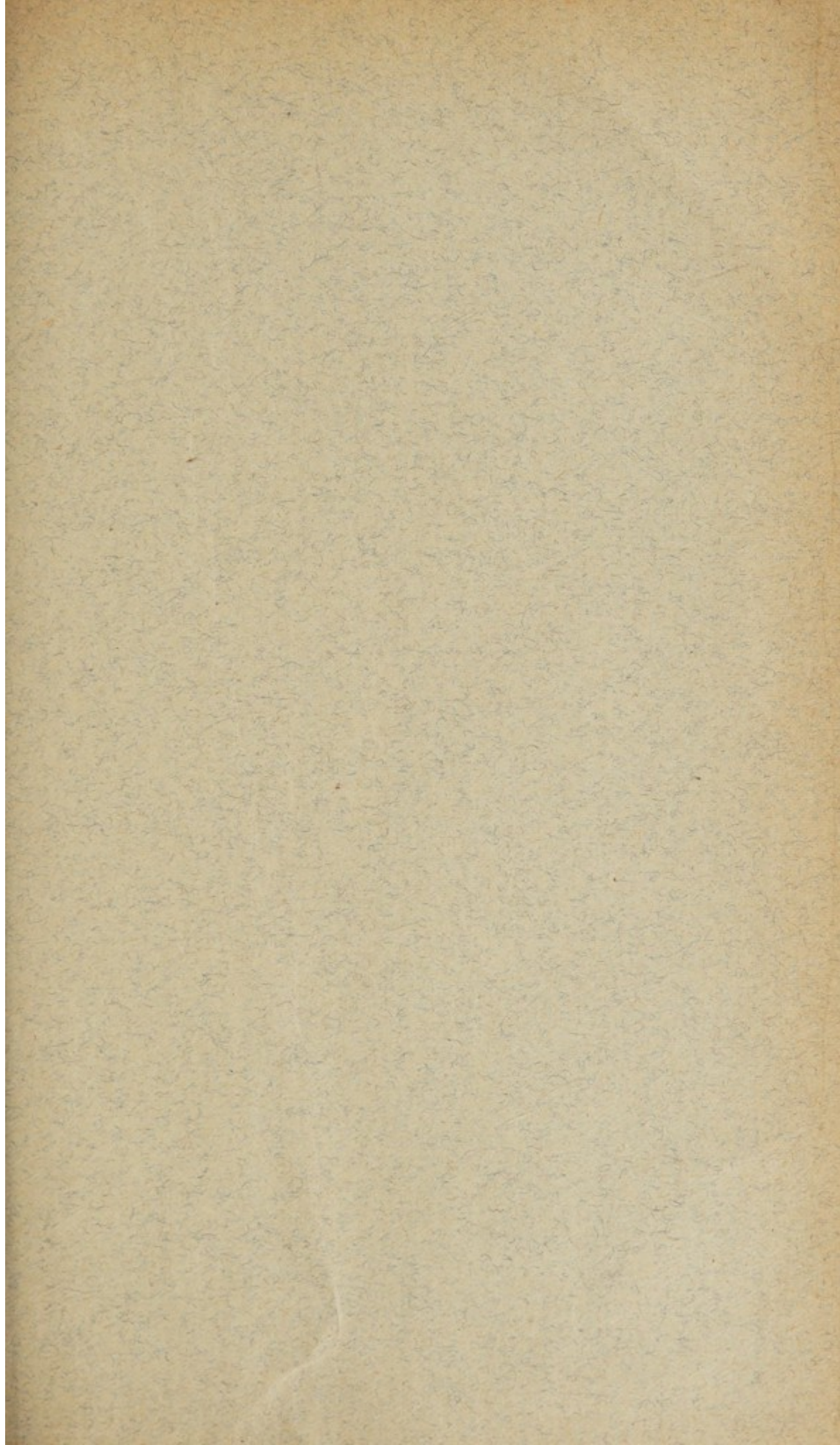
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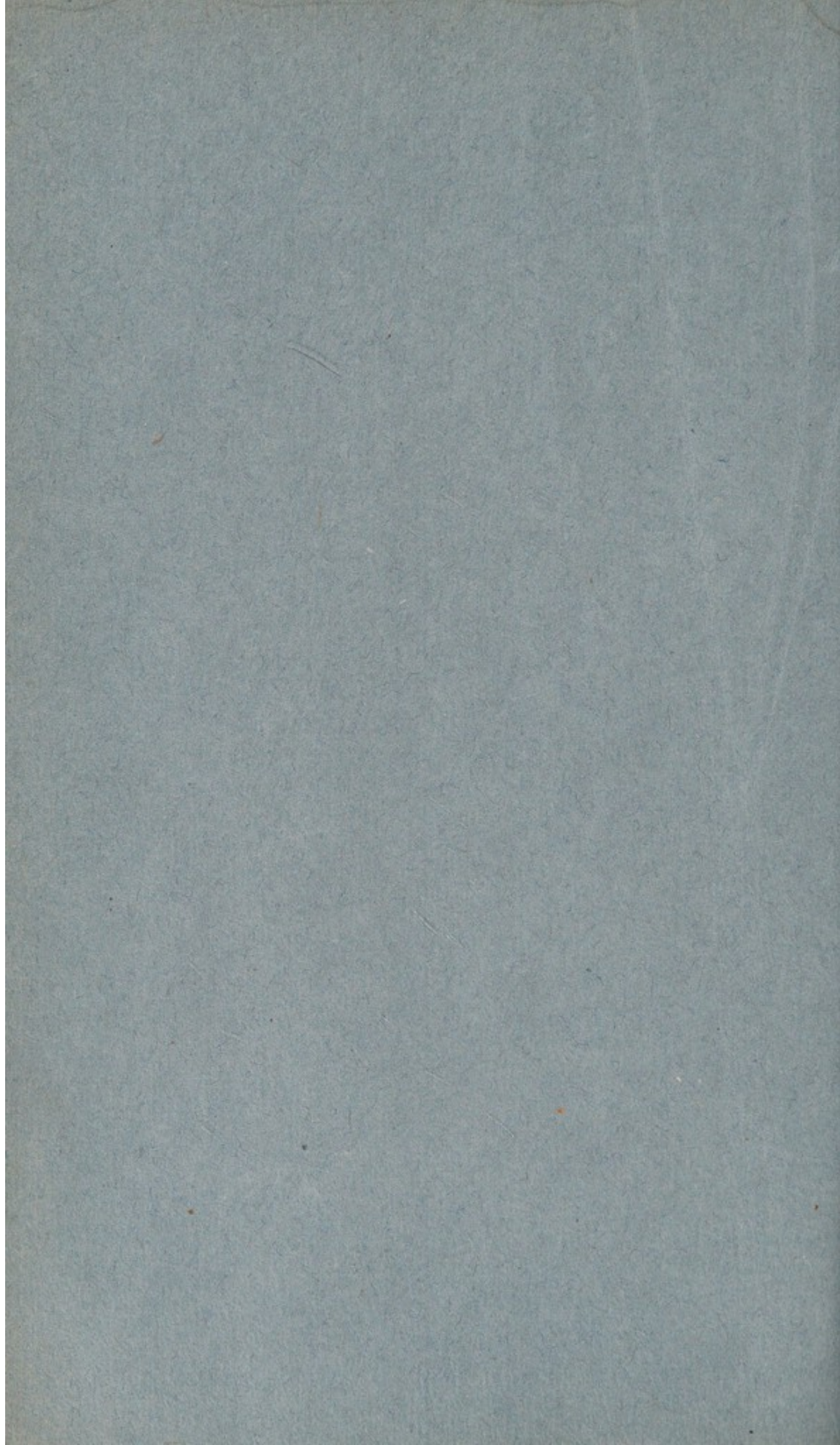
SAMUEL USHER, BOS

THE CANCER PATIENT'S
DILEMMA.

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NEW YORK.

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THE CANCER PATIENT'S DILEMMA.

*A Plea for the Standardization of What the Public
Should Be Taught in the Campaign of
Education Concerning Cancer.*

BY WILLIAM SEAMAN BAINBRIDGE, A. M., Sc. D.,
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Fear is an element in fostering, perhaps in causing disease; hope is a factor in palliating, perhaps in curing disease. Honest ignorance may be as disastrous in either regard as dishonest knowledge. The victim may be tossed from one horn to the other of this dilemma. There are so many difficulties involved in the dissemination of true and useful knowledge that the cancer problem becomes to the patient not so much a two horned dilemma as a hydra headed monster. The world still awaits the coming of the Hercules of medicine who, with the weapon of definite knowledge, will slay this serpent of the many heads. Until such fortunate day it is a very grave question how best to shield humanity from this insidious and powerful enemy. How may the campaign of education concerning cancer be conducted in order to eliminate harmful fear and engender hope, to safeguard both the public and the profession from honest ignorance on the one hand and dishonest knowledge on the other.

It is thought by many that we are no nearer to the answer to this question than we were when the inauguration of the campaign of education followed close upon the initiation of the era of scientific cancer research. That the campaign has eventuated already in a very wide dissemination of information—correct and incorrect—concerning cancer, no one can doubt. The output of secular literature

on the subject is constant, varying in volume, but never entirely absent. The present is a newspaper age, and it is safe to say that few homes, however humble, are left untouched by the campaign inaugurated within the medical profession, fostered by organizations of professional and lay membership, and sent broadcast over the land by an ever active secular press. It is impossible at present to estimate on which side of the deadly parallel of good and evil the larger total of accomplishment may be placed.

The campaign of education, speaking in the gross, is directed along three main channels of enlightenment—cause, treatment, and prevention. Each is hemmed round about with difficulties so numerous that the intelligent layman is soon in a maze of doubt and uncertainty. This state of mind is apt to engender a lack of confidence in the medical profession, and hence to lead to an unwholesome pessimism, the result of which is sure to be indifference and neglect. The less intelligent part of the public, unable to comprehend enough of the subject to be much the wiser for the campaign, settles back into the world old attitude of the acceptance of the view that is most nearly in accord with its own experience, observation, or prejudice. Members of either class of participants in the campaign are quite apt, if at all averse to the "cutting" idea of treatment, to veer away from the scientific body of the medical profession. The consequence is that they will fall, voluntarily, into the hands of those who are neither honestly ignorant nor dishonestly wise—the quacks—making perhaps a wayside stop at the door of the ethical enthusiast who is for the moment sincerely advocating some new theory of the cause—which involves a "cure"—or a new "cure"—which is regardless of the cause.

It requires no prophetic vision to trace the wanderings of the sufferer thus befuddled and handicapped in the search for knowledge concerning relief from this disease which has baffled the ages. He will

eventually consult the surgeon. And when I say *eventually* consult the surgeon, I give a flashlight picture of the condition and the fate of such an individual.

What, then, is to be done? Is the crusade against cancer to be checked? Are the crusaders to be silenced? Far be it from me to answer these queries unqualifiedly in the affirmative. Yet observation after observation might be cited to show that we should make haste slowly and cautiously.

The desire on the part of the public for knowledge concerning this direful malady is not surprising, and it is quite commendable. But the tendency on the part of certain members of the profession to the premature exploitation as true of that which is purely speculative and problematical, is deplorable. It is also unwise, it seems to me, to becloud the already obscure issues of the cancer problem by discussing in open court matters which are still *sub judice*. The educators of the masses with reference to cancer, to be safe and helpful, to win and retain the confidence of the public, must unite upon the *essentials* of what they teach. The only working basis for a rational campaign must consist in the dissemination, not of individual opinion, but of the consensus of those whose ability and experience are recognized.

I have recently received a personal communication from Dr. A. Hopkins Thwaites, of the University of Melbourne, Australia, who is now touring this continent on behalf of the Research Department of the Melbourne University, the Melbourne General Hospital, and his Government, investigating the cancer problem. In this communication, from which, at my request, Doctor Thwaites has permitted me to quote, the following remarks and suggestions occur:

The contemplation of the problem of the teacher in this campaign of education concerning cancer, and of the subject matter of his teaching, fills me with depression, if not with dismay, when I recall my own very recent experiences in the investigation of the cancer problem in America. If asked to name men of high professional

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standing, of nationwide, even worldwide repute in the study of cancer, one has no difficulty in doing so. Recently I have had the pleasure of meeting, learning the views, and studying the methods of several such men. I found that their views are not only widely divergent upon many fundamental points, but even directly opposite, not to say antagonistic. Yet each of these men might readily, and more or less justly, expect to be regarded as one suitable to undertake the education alike of the general practitioner and of the layman. But if each goes forth and sows the seeds of his own philosophy, what shall the harvest be?

A frank examination of the situation as it exists in America brings to light the following facts: Well informed, able, and widely experienced men have widely different views regarding many important phases of the cancer problem, particularly with regard to treatment, which is perhaps the most important aspect of the whole question from the point of view of the public. The business of educating the public has already been taken in hand by the lay press with deplorable results. The stir thus created, and the fixing of public attention upon the subject, has provided golden opportunities for those few mercenary men who are to be found even within the sacred circle of the medical profession and has at the same time brought rare and radiant joy to those others who love to bask in the limelight. One cure following another, with the delighted assistance of the lay press, has been exploded upon the suffering public until the combined smell "reaches to heaven." Opposition has arisen between the several expounders of the several treatments, the several exploiters of the several "cures," and between the honest workers on the cancer problem and those who are known to be or suspected of being dishonest in their methods, until a zone of hostility has been drawn into which a self respecting man with a new method or a new idea will hardly dare venture.

The resultant of all these forces, so apparent even to the stranger within your gates, is chaos. Nevertheless, it is a fact, and one which must be recognized, that the educational cancer campaign is upon you. The time is past when you might have considered the advisability of initiating such a campaign in the light of our present knowledge. All that remains for you now is to see that the campaign already begun shall achieve as much of good and as little of harm as possible. Recognizing the present chaotic condition, it seems to me that the indications are strongly in favor of a standardization of teachers and of things to be taught.

Constructively it appears to me that such an educational campaign as proposed should produce good results, pro-

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vided, 1, the teachers are, in all respects, suitable and competent men and women; 2, the right things are taught in the right way; 3, the medical practitioner is taught as well as the present, prospective and potential patient; 4, a good deal of what the layman has learned for himself and what he has been taught by the deplorable self ordained educational force of the lay press, influential but misguided medical men, charlatans outside the medical profession, and charlatans inside the medical profession, be untaught.

The first two of these requirements, taken together, involve almost the total of them; they also involve practically all the difficulties of the situation. For upon whom shall rest the high responsibility of inculcating in the public mind those ideas and principles which will yield the highest economic and human values, both now and in the future? What can be taught safely and expediently, with regard to the inadequacy of our present knowledge concerning cancer, and to the possibilities of future changes and developments in those views which we now hold?

Let us look for a moment, then, at some of the questions involved, and see what may with wisdom be selected from the maze of uncertainty to be employed as ammunition in this campaign of education. We may for purposes of convenience consider this under three heads: 1. Cause; 2, treatment; 3, prevention.

CAUSE.

The answer to the question asked on all sides by the public, What is the cause of cancer? is one which, in the words of Shakespeare paraphrased, should give us pause. For it is ever to be remembered that in the fabric of theory, the woof of cause is always interwoven with the warp of cure. The tendency of man to institute treatment in line with his conception of cause is as old as the race and accounts for the fact that imagination has been given full play in the evolution of theories concerning the etiology of cancer, and that the therapeutic history of the disease is one of the most fantastic in the annals of medicine and surgery.

The records of the past furnish a bewildering array of theories and a discouraging diversity of opinion regarding the origin of the disease—each theory and each opinion upheld as enthusiastically

by its advocates of hundreds of years ago as by those of this year of our Lord, 1915. The factors, as we know, which have been accorded a causative role in the production of cancer range from the three "humors" of Hippocrates, Celsus, and Galen, through virtually all the individual tissues of the body, and to a bewildering number and variety of extraneous agencies, from tomatoes to earthworms, and from "invisible animals" to porterhouse steak and English mutton chops, with tea, coffee, alcohol, and worry thrown in for good measure.

Walshe,¹ in 1846, referring to the various theories of the origin of what he called the "cancerous substance," said:

The majority of these are either so *prima facie* absurd, so insignificant, or so repugnant to the results of sound observation, that they are only fitted to figure among the curiosities of medical literature. The reader may well be spared an inquiry into speculations ascribing cancer to *atra bilis* or a melancholic humor—to lymph converted into an acrid and destructive fluid—to the presence of a gas possessing properties analogous to those of hydro-sulphuric acid—to fluids spontaneously effused and rendered corrosive by putrefaction—to the deprivation of the nervous fluid—or to the presence and action of a virus composed of an ammoniacal fluid containing oxide of nitrogen in excess. . . . With these vain hypotheses may assuredly be classed that which, under different forms, seeks to connect the appearance of cancer with the presence and agency of parasitic animals. I should indeed scarcely have conceived it necessary to advert more particularly to this theory than to the others, just mentioned, had it not been very recently revived with considerable pretension.

This statement by Walshe, who was a distinguished member of the medical profession of his day, a careful observer, and a fluent writer, antedated by more than half a century the campaign of education concerning cancer, but it holds today practically and perhaps more potently than it did in the middle of the nineteenth century, and serves to show how, so far as the etiology of the disease is concerned, the past is linked with the present. For

¹Walter Hayle Walshe, *The Nature and Treatment of Cancer*, London, 1846, p. 35.

the last influence of the old humoral conception of Hippocrates, Celsus, and Galen concerning the origin of cancer did not disappear until about the time when Walsh gave forth this opinion on the subject. The influence of the theories of the parasitic origin of the disease may be said to continue to be felt down to the present moment, as certain "schools" of cancer research workers still maintain this view in one form or another. Those who have followed the history of the modern study of cancer have been carried through a succession of hypotheses as to the causative influence of protozoa, entozoa, and various vegetable and animal parasites, some of which, like the poor, we have always with us. And since we have taken the public into our confidence in matters which should be discussed among ourselves *in camera*, every new theorist, like every new evangelist, has a line of "trail hitters" in his wake.

While the essential cause of cancer still remains unknown there are contributory factors, more or less potent, and these are outlined at the close of this paper.

TREATMENT.

The existence of the state of affairs thus outlined would be of little consequence, perhaps, were it not for the fact that in the vast majority of instances the exploitation of a theory concerning the cause of cancer goes hand in hand with the exploitation of a method of treatment based upon the given theory. And while the theory and its correlated method of treatment are being weighed in the balance by scientific investigation (provided it rises to that dignity), the advocates thereof are wasting valuable time in the life of one or more victims of cancer.

Furthermore, through the so called "popular" meetings, under the "joint auspices" of one kind or another, these views are—or at any time may be—promulgated, the secular press takes them up and scatters them broadcast, and if the particular theory

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is sufficiently strong in its "appeal" it is only a question of time until the surgeon is confronted with the request or demand, made by patients or their families, that such theory be tested in practice. My own experience in this regard is now a matter of record with respect to one far famed and now defunct method, popularly known as the "trypsin treatment,"² based on Beard's "irresponsible trophoblast" theory of the origin of cancer. Just now we have before us the "improper eating and drinking" theory of the cause of cancer, crystallized into a system of treatment in which the consumption of rice, to the exclusion of many other articles of diet, plays an important part. The latest exponent of this theory and method of treatment holds that by the persistent eating of rice, to the exclusion of the numerous other articles of diet which he considers conducive to the production of cancer, the disease may be prevented from developing, and, once initiated, the process may be effectually checked. In the preface to his recent volume on the subject of cancer, the well known and distinguished dermatologist expresses the hope that the pioneer work reported therein "may lead to the building of a strong and permanent structure regarding the true basic cause of cancer," and reassures his readers with the exclamation, "Truth never fears proof!" From such a statement the reader might naturally infer that the entire subject of the "true basic cause" of cancer has been settled, and that those who have spoken and written along a contrary line have either feared the truth or have evaded the truth. A careful reading of the volume, however, convinces the open minded that its author proffers an expression of hope rather than a verification of fact. Since the advent of Williams's book some years ago, the *Natural History of Cancer*, from which he largely quotes, much has been learned, and cancer has been found in all rice eating countries. And once again

²Bainbridge, The Enzyme Treatment of Cancer, *Scientific Report on Investigation with Reference to the Treatment of Cancer*, No. 1, New York, 1909.

the seeker after truth is confounded by such a glaring conflict of opinion. For the "campaigners" have been seeking to promulgate the view that, in the light of the extensive experiments that have been performed since the beginning of the present century, none of the theories advanced—constitutional, parasitic, or strictly cellular—may be accepted as sufficient. The majority of students of the cancer problem are convinced that the true, or even a satisfactory working explanation of the nature of cancer, has not yet been discovered, and that the whole trend of investigation points not to a single cause, but to a number of causes.

While, therefore, the mystery which today obscures the essential cause or causes of cancer, may be cleared away tomorrow, and while the views held at present may of necessity be abandoned in the near future, the treatment of the disease must be carried on irrespective of the essential or "basic" cause. The generally accepted method of treatment must be the outcome of experience and not of theory if the health of the individual is to be safeguarded and life prolonged, once cancer has developed. It is unfortunate, therefore, that the practice is maintained by some experimentalists, therapeutists and surgeons alike, of demanding definite and sweeping conclusions from a single case—or even from many cases—of cancer "cured."

For here, again, we find the public, in larger or smaller integral part, renouncing what they conceive to be the evils of surgery and flying to others they know not of.

Even more unfortunate is it that the public, despite the campaign of education, is not able to discriminate between that which, in accordance with the law of the survival of the fittest, has stood and will continue to stand the test of time and experience, and that which, in accordance with the same inexorable, but sometimes slow moving law, will sooner or later find its way to the *nihil fit* column of the deadly parallel of worthy and unworthy meth-

ods of treatment. It is for this very reason that the list of remedial agents suggested and employed in the treatment of cancer contains many and curious things, ranging in diversity from green frogs and witchcraft to Christian science and faith cure.

I have called attention elsewhere³ to the fact that we may not persuade ourselves, in smug twentieth century scientific satisfaction, that the dead past has buried its dead in this matter. On the contrary, the past has brought to the present many detachments of its army of therapeutic shades, and sometimes, in most unexpected guise, we encounter the reincarnation of some once familiar spectre.

For example, *Viola tricolor*, the modest pansy, whose prototype, "whether dog pansy, or sweet March"—so the monkish medical writers tell us—was used in the days of the Plantagenets in the treatment of most diseases, is found, just now, in the midst of the motley crew of reagents which are assembled in the latest "cancer cure." For is not the professor of experimental therapeutics of one of our leading medical colleges now employing a liquid extract, plaster, or pill, of a round dozen herbs, including *Viola tricolor*?

Far be it from me to say that the modest pansy, thus reinforced, may not do all in chorus that it failed to do alone. Its present reentry into the domain of cancer therapy is cited as a very pertinent illustration of the extremely doubtful policy of publicity in matters pertaining to the treatment of cancer by new or new-old methods.

In connection herewith it may be recalled that, in 1901, a paragraph went the rounds of the press describing a "cure" of a tumor of the tonsil—the diagnosis of cancer having been "made certain" by microscopic examination of a small portion removed—by the application of fomentations made from an infusion of the leaves of *Viola tricolor*. The patient, in gratitude for her recovery, had some leaflets printed describing the mode of application of

³*The Cancer Problem*, New York, 1914, p. 237 et seq.

the remedy. Perhaps, in this instance, as in others, no member of the medical profession was in any wise responsible for the publicity. However that may be, the treatment of inoperable cancer by means of extract of pansy leaves was again heralded in the secular press, in 1903, in connection with a case of "cancer of the mouth," the diagnosis of which was not confirmed by microscopic examination, but was verified by "competent physicians." Following the announcement in the daily press of the "cure," the Middlesex Hospital, the London clearing house for such matters, tried the remedy in a number of cases on two occasions, with negative results.⁴

The laity who, it has been said, are "close on our heels," and who are certainly persistent in their effort to obtain knowledge concerning disease in general and cancer in particular, are aided and abetted in their search by the secular press, so that it is undoubtedly very difficult to keep anything strictly within the profession while it is being investigated, if it contains either wheat or chaff upon which the public mind can seize. This desire on the part of the laity for enlightenment concerning cancer has been met latterly by those who advocate the education of the public in such matters. Despite this fact, however, there is still more or less prevalent the idea that surgeons are unwilling to test nonsurgical methods of treatment of cancer, and the public therefore hails with a certain degree of exultation the press notices of the "new cures" which from time to time engage attention.

If the various so called cancer cures were employed only in hopeless cases, being used merely as adjuvants or as last resorts in the desperate effort to alleviate suffering, and if they were in no way harmful, the matter would be by no means so serious. Unfortunately, however, they are often

⁴I can personally remember at least a dozen so called "cures" which have appeared, each in its turn, as a brilliant rocket, and each fallen worthless—a charred stick.

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brought into requisition where more rapid and better established methods should be used. They form, therefore, as I have repeatedly found, the settings of the deplorable pictures of "tampering," which are so often presented to the surgeon, the cancer hospital, and the home for incurables.

It is true, however, that those who come in contact with large numbers of patients suffering from cancer will find a certain proportion who are unwilling to undergo operation, or who, because of some complicating condition, cannot be operated on while the cancer is yet curable if surgical intervention were feasible, upon whom new measures may be tested with that degree of thoroughness which constitutes a fair test. To make such tests a surgeon must, of necessity, have a large number of patients, or have the privilege of a hospital with special provision for such patients.

Thus, while the surgeons should not hesitate to urge upon their patients the application of the only means at our command which offers a definite hope of cure—surgical removal—it cannot be gainsaid that those who are daily brought in contact with a large number of patients with malignant disease, and hospitals which have ample provision for them, are not only willing but anxious to apply the scientific test to seemingly rational new methods of treatment.

While such tests are being conducted, it is obvious that the physician occupies a most difficult position. For if he persistently safeguards the interests of the profession and public alike by maintaining secrecy until conclusions are positive, the public, clamoring for its newly acquired privilege of admission to the councils of medicine, is apt to raise strenuous objection to the noncommittal policy pending conclusions.

What, then, is the wise course? How are methods of treatment, other than surgical, to be tried out to a just conclusion without the risk of raising false

hopes in the minds of those suffering from cancer, and without causing many to say, "I will try this new cure," or, "I will wait and see what the new cure will do for others. If successful, then I will try it"? The answer to these questions is not easy to give. And yet, it seems to me, perhaps the most direct solution of this particular phase of the problem, is for all who test new methods of treatment to refrain from giving premature reports concerning them. If such reports could be kept within the archives of the medical profession, for professional eyes only, very good. But this seems to be an impossibility, for, as a confrère, quoted above, has said, the laity are "close upon our heels." The general sessions of the medical bodies are not held behind closed doors; intelligent laymen often avail themselves of the privilege of attending such meetings, and of hearing matters discussed which it is by no means always expedient that they should hear. And the ubiquitous newspaper reporter, with a nose keen for cancer news, is sure to be on hand for every "preliminary report." He does not give the waiting public information of a new method that is only being tried, but concerning which no conclusions are yet drawn. His chief would promptly "kill" such a modest piece of news, and so the thrifty scribe makes sure of his space rates by announcing emphatically that a "new cure" has been discovered. The adjective *new* is seldom omitted—as if the name were legion of *cures*. And thus the latest "new cure" is launched upon its career of publicity. Fortunately, many of these die a-borning, and little or no harm is done. Many others, however, live and are persistent aspirants for favor, reports concerning them being found over and over again in the columns of the secular, and sometimes of the medical press.

The standardization of thought and action with regard to the making of reports concerning methods of treatment being tested, is virtually impossi-

ble. For, as we know, some⁵ hold that "one single total disappearance of undoubted breast cancer under any form of nonoperative treatment will presage success, just as surely as a successful man flight presaged aviation." It is generally conceded, however, that sporadic or isolated instances of cure of any disease during a given course of treatment do not necessarily serve to indicate the successful application of the method to the general run of cases. This applies quite as forcefully to cancer as to any other disease. It is also quite well understood that there is a curved line of betterment in the majority of cases, coincident with, or even in spite of, rather than in consequence of any treatment. Any agent which happens to be employed at the time of the ascending curve of betterment is apt to receive credit for such improvement. For these reasons we have become accustomed to the idea that proof rests only in accumulated experience. It seems extraordinary that men of scientific training and high standing should require to have pointed out to them the very distinct difference between disappearance of a cancer *due to* the treatment and disappearance *during* the treatment. We are prone, therefore, to look with a certain degree of skepticism upon the claims to success which are founded upon a small number of clinical records. Yet who shall say just what that number must be? In view of certain tests which I have conducted, the question presents itself to my mind, What of the outlook for a given method if, succeeding, apparently, in one case, it fails in one hundred cases? Or, succeeding in one case, would it succeed in one hundred cases?

Is it not, then, calling forth for the public the hydra headed monster again, the dilemma of doubt and delay, when premature reports concerning the treatment of cancer are made? Is it not possible to obviate this contingency? Would not a conspir-

⁵Maurice H. Richardson, The Operative Treatment of Cancer of the Breast, *Journal A. M. A.*, February 4, 1911, p 315.

acy of silence be better than reports based upon very meagre clinical experience with methods founded upon empirical notions or quasi-scientific theories, or even upon scientific principles sound in themselves and apparently so in the given application?

A review of some of the typical instances of the more or less formal and exhaustive tests and investigations of cancer "cures" would serve to emphasize the possibility for harm which comes with the premature exploitation, in the medical or the secular press, of any method of treatment. It cannot be unqualifiedly asserted that one or a dozen cases successfully treated by a given method establishes its value with sufficient positiveness to warrant its application to the exclusion of surgical intervention. A test with negative findings, on the other hand, if fairly conducted in a reasonably large number of cases, may be said to afford ample justification for the abandonment of such a procedure.

While surgery stands first as a possible cure, according to the present day consensus, other measures may be employed as adjuvants or as palliative means. In this regard, again, there is a diversity of opinion, as all know. One will say, for example, that radium is useless in any except the most superficial and easily removed growth; another will say, given enough radium, he will cure any cancer. One will say the x ray not only does not cure, but aggravates cancer; another will say it should supplant the surgical instrument in the treatment of cancer. One—and this one represents the majority, fortunately—will advocate the radical removal of every vestige of cancer; another—fortunately the minority—will recommend this or that means to the exclusion of surgery. The patient, in the meantime, is in a state of bewilderment and uncertainty. Is it any wonder that he seeks the quack, whose positive assurances of absolute cure, with no return of the growth, inspire confidence and instill hope?

Never can we hope for universal unity, but we

can and must secure agreement of authoritative opinion to guide the public in matters of health.

PREVENTION.

The employment of the diverse measures and methods, some of which are absurd and many harmful, to which allusion has been made, is the natural outcome of the mystery which has always surrounded the nature and cause of cancer. It has also been fostered by the difficulty which is so often experienced in differentiating the various forms of this disease from the dermatological manifestations of certain other maladies, and by the mistakes in diagnosis which have arisen from these factors. And here the patient faces the real dilemma, from which he may turn to health and happiness or to illness and death. For if the wrong diagnosis is made, the wrong treatment is practically inevitable. With the essential cause, which might suggest the treatment, unknown; with no uniformly trustworthy signs and symptoms to guide one to the diagnosis of cancer in its early stage; and with no reliable serodiagnostic test for the disease; the prevention of this malady naturally resolves itself into the elimination of the predisposing factors.

This brings us to the phase of the cancer problem, it seems to me, with which the campaign of education should chiefly concern itself, so far as the laity is concerned. Yet here we find the same need of standardization of what is to be taught that is encountered in every other phase of the question. Those who are especially impressed with the importance of heredity as a predisposing factor in the production of cancer, hold that eugenics will prevent the occurrence of the disease, and that by this means it may be entirely eradicated in time. Reference has already been made to one manifestation of the nutrition theory of prevention, viz., the rice eating plan. The elimination of all sources of chronic irritation, especially in regions which experience has shown to be especially susceptible to cancer,

is the most generally accepted manner of preventing the disease. This includes all benign neoplasms which are so situated as to be subject to chronic irritation or repeated acute trauma, and the local manifestations of other diseases upon which cancer may be superimposed.

When the layman becomes thoroughly imbued with the probable dangers of all these, and many other predisposing causes of cancer, and when he hears the varying opinions concerning the removal or the leaving alone of the lumps and bumps and other tissue manifestations whose harmlessness has been impugned, his confusion is still further confounded.

The campaign of education, therefore, revolves primarily not around the layman, but around the medical man. A very large proportion of cases of cancer, as encountered in private practice, in the hospitals which receive patients suffering from malignant disease, and in the pages of medical and surgical publications, if carefully studied, would serve as telling arguments in favor of instituting the campaign of education concerning cancer within the ranks of the profession first, and of standardizing, if such an expression may be employed, the accepted facts concerning the nature, course, diagnosis, and treatment of malignant disease, together with the consensus regarding the predisposing factors. When these matters have been agreed upon with a fair amount of uniformity; when general practitioners and specialists in other lines are thoroughly imbued with the importance of the most careful diagnosis and the utilization of all diagnostic methods at our command; or when they are frankly willing to send doubtful cases to those who will do this; we shall then be in a position intelligently and helpfully to educate the public.

I may be pardoned, in connection herewith, the reiteration of what I have repeatedly expressed, in substance, on other occasions: The campaign of education concerning cancer, to be rational and safe,

must be made to apply first to the general body of the medical profession, and, through the profession, to the public at large. It must have for one of its objects the maintenance, upon the part of the physician, of a standard of ethics which insures the best interest of the patient, regardless of operative and mortality statistics; and the development, upon the part of the patient, of a spirit of confidence in, and cooperation with the physician. It should be aimed at health rather than disease; at physiology rather than at pathology. It must be directed toward the prevention of cancer by the maintenance of the general health as well as toward the eradication of the various factors, within and without the body, which are thought to exercise a predisposing influence in the initiation of the disease.

The following "articles of faith" are proposed as a working formula to be employed in the campaign of education pending the time when, by the slow process of evolution, the entire question of educating the public shall have been answered by the supreme court of expert knowledge fortified by experience:

ARTICLES OF FAITH.

Concisely, these articles constitute the platform upon which we unite to teach the public the lesson of cancer. These, I believe, we may teach, but very little else. The following articles are put forward as a guide to those professional men who will in turn guide the public.

1. The hereditary and congenital acquirement of cancer is a subject which requires much more study before any definite conclusions can be formed concerning it, and, in the light of our present knowledge, it holds no special element of alarm.

2. The contagiousness or infectiousness of cancer is far from proved, the evidence to support this theory being so incomplete and inconclusive that the public need have no concern regarding it.

3. The communication of cancer from man to man is so rare, if it really occurs at all, that it may be practically disregarded.

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4. Those members of the public in charge of, or in contact with sufferers from cancer with external manifestations or discharges of any kind, need at most take the same precautionary measures as would be adopted in the care of any ulcer or open septic wound.

5. In the care of patients with cancer, there is much less danger to the attendant from any possible acquirement of cancer than there is of septic infection or blood poisoning from pus organisms.

6. In cancer, as in all other disease, attention to diet, exercise, and proper hygienic surroundings is of distinct value.

7. Notwithstanding the possibility of underlying general factors, cancer may, for all practical purposes, be at present regarded as local in its beginning.

8. When accessible, it may, in its incipency, be removed so perfectly by radical operation that the chances are overwhelmingly in favor of its nonrecurrence.

9. When once it has advanced beyond the stage of cure, suffering in many cases may be palliated and life prolonged by surgical and other means.

10. While other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest present means of cure.

11. Among the many advances in and additions to cancer treatment, the improvements in and extensions of surgical procedure surpass those in any other line, and fully maintain the preeminent position of surgical palliation and cure.

12. There is strong reason to believe that the individual risk of cancer can be diminished by the eradication, where such exist, of certain conditions which have come to be regarded as predisposing factors in its production.

13. Some occupations, notably working in pitch, tar, paraffin, anilin or soot, and with x rays, if not safeguarded, are conducive to the production of cancer, presumably on account of the chronic irritation or inflammation caused.

14. Prominent among these predisposing factors, for which one should be on guard, are: General lowered nutrition, chronic irritation and inflammation, repeated acute trauma, cicatricial tissue, such as lupus and other scars, and burns, benign tumors—warts, moles, *nævi* (birthmarks), etc.—also changes occurring in the character of such tumors and tissues, as well as the occurrence of any abnormal discharge from any part of the body, specially if blood stained, are to be regarded as suspicious.

15. While there is some evidence that cancer is increasing, such evidence does not justify any present alarm.

16. Suggestions which are put forward from time to time regarding eugenic, dietetic, and other means of limit-

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ing cancer, should not be accepted by the public until definitely endorsed by expert consensus. Such consensus does not exist today.

17. So far as we know, there is nothing in the origin of cancer that calls for a feeling of shame or the necessity of concealment.

18. It will be promotive of good results if members of the public who are anxious about their health and those who wish to preserve it will, on the one hand, avoid assuming themselves to be sufferers from one or another dreadful disease, but, on the other hand, will submit themselves periodically to the family physician for a general overhauling.

19. At all times and under all conditions there is much to be hoped for and nothing to be feared from living a normal and moderate life.

20. The finding of any abnormal condition about the body should be taken as an indication for competent professional and not personal attention.

21. Watchwords for the public until "the day dawns" and the cancer problem is solved are: Alertness without apprehension, hope without neglect, early and efficient examination where there is doubt, early and efficient treatment when the doubt has been determined.

The adoption of the measures thus outlined for the education of the profession and the public, it seems to me, will have both direct and indirect value for present, prospective, and potential sufferers from cancer by extending the knowledge of the importance of early diagnosis, and by improving the body of statistical and general knowledge concerning cancer.

Such a campaign should be very potent in emancipating the patient from his dilemma, in destroying the hydra headed monster of doubt, fear, and disease.

34 GRAMERCY PARK.

