

GEORGE R. HARRISON
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASS.

August 3, 1936

Millard Smith, M.D.,
472 Commonwealth Ave.,
Boston, Mass.

Dear Dr. Smith:

I have carried out a number of spectrographic analyses on the material contained in the ampoule submitted by you, and have read the first few chapters in the monograph by Koch which you sent.

I consider his statements pertaining to matters of physical chemistry, spectroscopy, and the interaction of matter and radiation indicative of a basic knowledge of the subject. There are a number of points which are still the subject of controversy, such as mitogenetic radiation, but numbers of recognized biologists hold to the side which Koch accepts. His thesis may not be correct, but I see no way of proving from internal evidence that it is incorrect.

I first measured the absorption curve of the ampoule material in a quartz cell, and found it to show no distinctive absorption bands, but only a rather linear increase in density through the ultraviolet until it became sensibly opaque in a 1 cm. layer at 2200 Angstroms. This type of absorption curve at once rules out several large classes of substances.

I then analyzed the liquid with the electric arc for metallic constituents and found that it was apparently an aqueous solution of an organic substance in moderate concentration. To make this analysis it was necessary to destroy the material.

A search through the absorption curves given in the International Critical Tables narrowed the possible materials down to a group of a dozen or so. One of the curves most nearly approximating that found was that of glyoxal in water.

To carry the hunt further than this spectrographically would be time-consuming and costly, since it would be necessary to mix duplicating solutions to reproduce the exact curve found. I assume that you do not require this, since it seems to me that the evidence points to the probability that the solution is what Koch says it is, or at least the equivalent.

You will appreciate that while glyoxal in water gives a curve similar to that of the ampoule material, this does not necessarily mean that the latter is this. It merely gives presumptive evidence that similar molecular bonds are present in the two materials. My conclusion is that the spectrographic analysis, as carried out so far, makes it appear very probable that the material is what Koch says it is.

Very sincerely yours,

George R. Harrison

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January 8, 1946

Mr. Karl H. Keefer
Iowa Wesleyan College
Mount Pleasant, Iowa

Dear Mr. Keefer:

Your letter of January 4 was referred to Dr. Hale, who very kindly autographed a copy of "The Farm Chemurgic" for the gentleman you discussed. We are sending it to you under separate cover and hope you will have an opportunity to deliver it or send it to Mr. Jungbluth.

Your comments are of great interest and it is to be very much regretted the young man has such difficulties. I think a man in a totally disabled condition can afford to become more or less a guinea pig for the medical profession for the making of various tests. I am not familiar with the disease to know if it is caused by a virus or if it is something more or less incurable.

We have heard very interesting and glowing accounts of a cure obtained by Dr. William F. Koch of Detroit. Although he is much maligned by the medical profession, the fact remains he has accomplished some outstanding cures. Your speaking of blindness reminded me that a friend of mine in Washington, D.C. obtained some of Dr. Koch's medicine for his cattle. Recently he had a horse, a good jumper, which was blind in one eye. He was unable to find any cure as far as the ailment was concerned, so purely as an experiment he gave the horse a shot of the same medicine I am talking about. Within 24 hours the animal was blind in both eyes, but in another 24 hours it was able to see with both eyes, although he had not been able to see out of one eye for some months before that. In this particular case I understand the ailment was caused by a virus infection.

The same identical chemicals have been used on any number of humans, including treatment of cancer as well as more complicated illnesses. It might very well be worth while to have the parents contact Dr. Koch. I say he is maligned by the medical profession, but I will add we have checked the chemistry of his medicine and feel he is distinctly on the track of something outstanding which should be proved by the medical men rather than attacked. This work is not something new, as

Mr. Karl H. Keefer
2 January 8, 1946

he has been carrying it on for a period of more than twenty years, but then again, penicillin was known for nearly fifteen years before it was accepted.

I hope the young man enjoys the book we are sending.

With kind regards,

Very truly yours,

Willard H. Dow
President

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May 28, 1946

Mr. Jesse H. Jones
450 Statler Hotel
Washington, D. C.

Dear Mr. Jones:

I have your letter of May 6 which was received during my absence from the office and has been unfortunately delayed in reply.

Your letter had to do with the drive of the American Cancer Society for contributions, and I have to say frankly to you that I cannot see how you ever got roped into this sort of program. I make this statement advisedly. All the comments on the fatalities from cancer I imagine are entirely correct, and far be it from me to question them, but the thing I do question about the whole matter is this. With all the money and all the organizations they have in cancer research, it has grown into quite a racket. If the same type of organization and brains were applied to combatting cancer as were applied to the atomic bomb, we would get somewhere, but I am personally convinced no group of medical men will ever solve the cancer problem, for two reasons. In the first place, they are not qualified to conduct the research because their minds are closed insofar as they approach it from the standpoint of medicine only and not science in general. In the second place, the whole process of carrying on cancer research and its treatment is too lucrative to throw out of the window over night.

As my own personal opinion and expressed as a friendly suggestion to you, I would think you would be extremely wise not to have anything to do with the American Cancer Society or any other present cancer organization. Although they have a very glamorous list of Directors, Trustees or whatever you want to call them, in looking over the list you know perfectly well not more than one or two could take interest enough in what is going on to be able to contribute substantially to it. For instance, Mr. William Green, President of the American Federation of Labor, is a Director. You go down through the list and smile as you go. I am personally not interested in the drive.

Mr. Jesse H. Jones
2 May 28, 1946

It was nice hearing from you, although I am not interested in your proposition.

With kind personal regards,

Very truly yours,

Willard H. Dow
President

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June 21, 1946

Mr. Laurence B. Thatcher
Imlay City, Michigan

Dear Mr. Thatcher:

It is indeed a pleasure to acknowledge your letter of June 19 and to hear your comments, especially as applied to your sister-in-law in Bay City. It is rather unfortunate that our Company has become in any way associated with the Koch medical treatments, and I want to correct this statement right now. The Dow Chemical Company is not responsible and has no more than a very great scientific interest in this work, and Dr. Koch himself is to be credited in every respect with the origin of the ideas and for all his successes.

You may be interested to know, however, how we began to be interested in this method of treatment. Some years ago we decided it was up to us to apply ourselves to the chemistry of such diseases as influenza, and find out all we could. During the analysis of the problem entirely from a chemical standpoint, and not from a medical standpoint, we arrived at the conclusion that some medicinal of high oxidizing characteristics should be the method of medical cure. About that same time one of our people here discovered Dr. Koch's activity and found that his chemistry as applied to medical treatment was exactly the thing we were interested in. We proceeded to follow all his problems, and as a result of his observation of our interest, he began to concentrate a great deal of his attention in this neighborhood.

His recent trial in connection with the Pure Food and Drug Administration has brought him the support of some of our technical people on the basis of submitting technical information that is available here and has been proved up and which the government had attempted to misrepresent. Our intention all the way through has been to try to get at the truth of this whole matter, and whether it is Dr. Koch or somebody else, we would take the same attitude to try to prevent an innocent man from being crucified. We cannot understand what the Food and Drug Administration is driving at for the reason that all our information to date would indicate Dr. Koch has been exonerated from illegal practices as far as the Administration is concerned, and as for the mislabelling of packages, like everyone else it is merely a matter of interpretation rather than willful

Mr. Laurence B. Thatcher
2 June 21, 1946

violation of any law. Before the present trial came up, Dr. Koch had appeared before the Washington representatives of this department and thought the whole matter was straightened out to their satisfaction, but apparently not so. It is strange, because the same procedure is run into time and time again by industry when it is necessary to get a label properly approved before it goes to the public, but in his case it does not seem to be possible without a trial. He has had no trouble in proving his points, but the government has spent a tremendous amount of money to try to prove he is wrong. It almost sounds as if a certain group is attempting to persecute him unjustly.

I am replying to your letter in some detail to give you the benefit of our background and our interest in Dr. Koch's work. He is not a representative of our Company in any sense of the word. We have no control over his treatments, although we do hope to assist him in developing additional products for further use. As far as I am personally concerned, I consider him one of the outstanding scientists in the medical profession, and he is so far ahead of the thinking of his profession that he is naturally being ridiculed somewhat. As a matter of fact, the inventor of penicillin was completely ridiculed for a period of about twenty years until the war brought about its acceptance by the medical fraternity. The mere fact that Dr. Koch has a treatment definitely affecting virus diseases is of itself sufficiently important that it ought to be analyzed from every angle by the medical profession. As I understand it, his treatment of the virus type of cancer will run anywhere from 40 to 60 percent cure. If he had a 10 percent cure, it would be something the medical men ought to look at, but the ways of the world are strange, and new ideas are slow in developing. I think we all have an opportunity to see something new aborning in Dr. Koch's work, and it pleases me a great deal to hear about your enthusiasm.

This type of treatment has been used with outstanding success in the case of cattle and other animals, but as luck would have it, I have a cow myself which was infected with mastitis, and although the record of mastitis cures is of the order of better than 90 percent, we have had a great deal of difficulty in getting her cured. Actually, I think the disease had progressed to such a stage before she had the injection that it will take a long time for her to recover, but I am still very hopeful and periodically we are able to see definite improvements. I have all the faith in the world she is going to be cured, and I am just pointing it out as an example with which I am personally familiar that is giving some difficulty.

I hope you have had a chance to meet Dr. Koch, as he is ardently interested in his work, although he is a very modest man. He is really working himself much harder than he should for his own health. I sincerely hope some day the public will recognize him for his ability.

It was so kind of you to write and I hope I have not presumed too much on your kindness by sending you such a long reply.

With kind regards,

Very truly yours,

Walter N. Drow

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July 25, 1946

Detroit Free Press
Detroit, Michigan

Gentlemen:

Your editorial in today's issue concerning the Koch case is based upon an erroneous assumption of facts. You say that if Dr. Koch has a cure for cancer he ought to disclose it, and you therefore convey the impression that he is being prosecuted for refusal to disclose the facts concerning his remedy. The charge against him is that labels on some of his products are false, in that they imply that the drugs which he sells to physicians only, and not to the general public for self medication, have therapeutic value in the treatment of cancer and some other forms of disease. As the judges in two trials properly instructed two juries, he is not guilty of the charge if the drugs have any value as a mitigating agent.

In his long career Dr. Koch has disclosed many times the chemical composition of his drugs, his theory as to how they work in the body, and how they are prepared. He has been a witness in all the trials and has been cross examined by government attorneys, and answered every question asked concerning the same. Prior to 1942 he published elaborate books, pamphlets and lectures on the subject. Since that year he has been restrained by court injunction, obtained by the government itself, from publishing any further literature. This ought to set you right on the question of whether he is remiss in any way in not giving his information to his brother physicians.

In the trials the issue comes down to the question of clinical proof. Have the drugs in cases where they are used shown the capacity claimed for them? No one expects any medication to be 100% effective. No remedy is known which always produces results; hence there must always be failures.

The record in these trials shows case after case of patients diagnosed as having cancer, who after treatment with one of Koch's drugs recovered their health, with all signs of cancer disappeared. When I say diagnosed, I mean situations where the patient went through the routine hospital procedure of having a bit of the lesion suspected as malignant excised, and submitted to the inspection of a trained pathologist. Upon the basis of the appearance of the cells in a tissue slice properly stained and mounted upon a microscopic slide, the pathologist arrives at the conclusion after a view of same under the microscope that the patient has or has not a malignant growth. A brief statement of one or two of these cases, as disclosed by hospital records and other evidence before the court, will illustrate what I mean.

A gentleman who lives in Jackson in 1934 noticed a lump over his right shoulder blade, and the use of his right arm had become exceedingly painful. He went to the University of Michigan Hospital for diagnosis. X-rays of the bones of the shoulder girdle and arm were taken and examined. They showed a pathologic condition which the roentgenologists were unable to identify. Consequently, the patient was required to undergo a biopsy operation, whereby portions of the bones and surrounding tissue were removed and submitted to microscopic examination. The finding was a malignant condition known as hemangio sarcoma. Advice was given that he should submit to an operation whereby shoulder blade, right clavicle and right arm should be removed. All this appears in the hospital record. Being unwilling to be crippled in this manner, the patient took Koch's treatment. After some months he recovered and has remained symptom free for eleven years, at least. Subsequent x-rays are admitted by government experts to show that the pathology has been corrected.

The government claims in this case that the man never had cancer, as they interpret the x-rays taken at the time of his visit to the University of Michigan Hospital as showing a non malignant condition. In this instance they claim that pathologists report of malignancy should be disregarded.

Here was a case history where the diagnosticians at the excellent institution at Ann Arbor had no reason to anticipate that the man would go to Dr. Koch. They were sincerely trying to find out the nature of his condition, were unable to determine the nature of the disease without a tissue examination, and upon such tissue examination arrived at a diagnosis of cancer, which in their judgment warranted the advice that he should submit to a crippling operation. Had this operation been performed, the absence of recurrence of the cancer would be attributed to a successful surgical operation.

Another man was in the Ford Hospital, Detroit, on repeated occasions for an abdominal condition. The hospital record shows that at first this case was diagnosed as an abscess, but finally portions of the lesion removed showed malignancy and his condition on the basis of tissue examination was pronounced as cancer. With an open sloughing wound in the abdominal wall, from which the intestinal contents were discharging, and the lesion so extensive that no operative relief could be suggested, he was left out of the hospital apparently in a dying condition. He received the Koch treatment, recovered his health and strength, and there has been no recurrence for four years. Government cancer experts admit that he had cancer, but contend that the four years that have elapsed is too short a time to say that he has been cured. Whether he has or has not, the difference between a bedridden condition at death's door, with an open wound in his abdomen, and his present condition where he is performing hard work on a farm, is significant of benefit.

There are many more such cases and it would take too long to review them in such a letter as this.

I suppose that jurors who in both trials held out for acquittal were impressed by this clinical proof and were not willing to go along with the government's contention that the Koch treatment is wholly worthless. It seems

to me that no matter how many times the case is tried and the evidence fully presented, as it has been in the two trials that have occurred, there will always be some jurors who are more willing to rely on the established facts in the experience gained through the use of this treatment than the opinions of experts whose testimony is to the effect that this experience is inconclusive.

When one knows the facts presented by the evidence and documents, the futility of these trials becomes apparent. The labels which the government charges were false in their representation as to therapeutic quality were discontinued as soon as Dr. Koch was indicted. Had the Food and Drug Department objected to their use, he would have discontinued them at its request, as it is obvious that physicians do not conclude to use a remedy because of what appears on the label. The record shows that numerous physicians throughout the world still continue their use, notwithstanding the claims of government experts. The only claim of harm that may result is based on the theory that patients who could be better and more effectively treated by some other method get the Koch treatment rather than the standard treatment, but this is not borne out by the record. The patients coming to Dr. Koch and his followers do so only because it is the last faint hope. They have already had what standard medicine can offer, or have reached the conclusion that they will not submit to a maiming operation such as was suggested in the first case to which I have referred. One can clearly sympathize with that man's decision that he would take his chance with the Koch remedy, rather than to live a hopeless cripple.

It may take many years before a remedy or form of treatment is accepted. Only now, after thirty years, have the majority of doctors come to the conclusion that the Kenny treatment for paralysis after poliomyelitis is effective. There are still many who deny it. A jury composed of laymen cannot be expected to solve such questions. It takes time and experience to find these things out. There always have been differences of opinion among medical men as to methods to be pursued in combatting disease, and the law recognizes the impossibility of reconciling them, by licensing practitioners of the old school, homeopaths, osteopaths, naturopaths, chiropractors and others who pursue divergent methods, which often are in sharp conflict. Suppose it were left to a jury as to whether the principles of homeopathy were sound? Does anyone suppose that a verdict either way would either root out that form of treatment, or cause it to be universally accepted?

Very truly yours,

April 21, 1947

James V. Sheridan

1456 Penobscot Bldg.,
Detroit 26, Mich.

D. H. Arnott, M.D.,
226 Queens Avenue,
London, Ontario,
Canada.

Dear Dr. Arnott:

I have been assigned the pleasant task of advising you concerning the nature of the chemical work done by the Dow Chemical Company at Midland, Michigan, on the chemistry of the Koch drugs. I am presuming that you are not interested in all the details of this work but rather in the conclusions reached and the general mode of procedure used in reaching the conclusions.

Our activity started late in 1944. Through the years we have been interested in chemical catalysts, and particularly we were interested in oxidation and polymerization catalysts. We had observed that certain chemical structures within the molecule appeared to be the centre of desirable catalytic effects. Naturally we were interested when we discovered that Dr. Wm. F. Koch of Detroit was using certain chemicals containing these structures and on the same theoretical basis. Our application was in industrial chemistry and Dr. Koch's was in biochemical systems, but our approaches fell into one category.

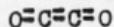
As you might expect we were somewhat discouraged by the weight of (government) expert opinion against the Koch chemistry. I was particularly impressed by a 1936 American Medical Society publication to the effect that the major portion of the Koch chemistry is "pure nonsense" and that some of the structures are "incomprehensible". We were also advised by this publication that Koch's "associates were not reputed for scientific attainment or for any other reason except the kind of repute earned by association with William F. Koch". Needless to say our chemists leaned over backwards in their proofs in order that we might protect the good name of Dow from such a vigorous assault.

I was placed in charge of the investigation by Dr. Willard Dow and chose first to find out what the specific defects were supposed to be in this chemistry. This can best be treated by separate consideration of each of the Koch drugs.

NOTE: As we in Canada are interested in only Glyoxylide this part of the communication only will be repeated here.

GLYOXYLIDE

Glyoxylide is alleged to be a polymer of the structure



Dr. Koch has testified concerning his process of making Glyoxylide. He has described $\text{O}=\text{C}=\text{C}=\text{O}$ as a gas which he has never isolated per se for the reason that it is so reactive that it immediately polymerizes. The basis of his assumption that $\text{O}=\text{C}=\text{C}=\text{O}$ exists is the fact that it is the only substance which can explain the formation of the particular polymers made. The opposition experts state categorically that there is no such compound, that there are no polymers of $\text{O}=\text{C}=\text{C}=\text{O}$.

The (opposition) experts say that even if these compounds existed they would immediately form glyoxylic acid in contact with water (for the reason that $\text{O}=\text{C}=\text{C}=\text{O}$ is structurally the anhydride of glyoxylic acid).

We submitted some of the Koch Glyoxylide in concentrated form to analysis. The material submitted was in water solution and, therefore, according to (opposition) expert opinion, should have been a solution of glyoxylic acid. We found, however, that the material was, in fact, a polymer consisting of a chain of carbonyl (i.e. $\text{C}=\text{O}$), groups and that the solution contained no glyoxylic acid. In fact, the solution contained no acid of any kind. We failed to detect acid groups even with spectrum analysis.

The Dow chemists who took part in this program testified at the Koch trial held in the Spring of 1946 in Detroit. It is significant that no rebuttal testimony was offered by the Government.

The above information is, of course, a sketchy account of our investigation. The complete evidence is available to anyone interested. As a general conclusion I can say that every single case where an experiment was possible the results were consistent with the views espoused by Dr. Koch. We have not as yet secured any results inconsistent with those views.

Sincerely,

(signed) J. Sheridan.

JVS:VW