



125 WORTH STREET  
NEW YORK 13, N. Y.

THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

October 19, 1956

Dr. Leo Szilard  
Quadrangle Club  
1155 East 57 St.  
Chicago, Illinois

Dear Doctor Szilard:

For sometime the New York City Department of Health has been studying the various problems related to possible damage to the health of the public from radiological hazards.

Environmental safety in other areas has been promoted by sound legislation. In New York City, the Board of Health enacts such legislation which is incorporated into the city's Sanitary Code. Attached is a draft of regulations which are proposed for inclusion in the Code. It will be used as the basis for a program of controlling radiological health hazards.

The proposed Code requires registration of all sources of radiation in New York City. The information obtained here will be used to develop the control program. In order to avoid duplication, the industrial installations in New York City already registered with the New York State Department of Labor will not be required to re-register with this Department. There will be no duplication of registration between the City and State Health Departments.

The proposed Code does not itself contain standards but relies on the standards specified by the National Committee on Radiation Protection by reference. In addition, it calls for self-policing by experts in the field who are required to determine the safety of any specific installation.

We realize that it might be helpful to spell out details and give standards for each type of operation. However we believe that, in the light of present changing knowledge in this field, it may not be possible to write a code in such a form now. Another consideration which leads us to favor a general code of the type proposed is

that the New York City Sanitary Code is widely used as a model by other cities throughout the nation. We feel that it would be quite undesirable to have any standards of dosage or safety copied unless there is a thorough awareness of the limitations of such standards. We would like to ask you to take these facts into consideration in connection with the proposal for a general code rather than a detailed document.

I would appreciate it very much if you would let me have the benefit of your thinking in connection with this proposed code. Any comments or suggestions which you may care to make concerning it will be presented to the Board of Health when it considers the enactment of the proposed legislation.

Very truly yours,

*Leona Baumgartner M.D.*

Leona Baumgartner, M.D.  
Commissioner of Health

Encl.

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125 WORTH STREET  
NEW YORK 13, N. Y.

THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

October 25, 1956

Dr. Leo Szilard  
Quadrangle Club  
1155 East 57 Street  
Chicago, Illinois

Dear Leo Szilard:

I am sure you know about Jonas Reiner's death. Kitty is here now and we have tried to locate you, hoping that we could get you for dinner with her. She goes back to Jamaica as soon as she can get a boat. Do let us know sometime how we can catch you when you are in New York because both Nat and I are eager to see you. I am sorry to have missed Trude when she was here.

Your help on the enclosed will be greatly appreciated. It seems to be the best that our people have been able to come up with so far. When you are in town again, I hope you will be able to talk to some of our top staff about what we should be doing.

With the best of personal greetings, I am

Sincerely yours,

*Leona Baumgartner*

Leona Baumgartner, M.D.  
Commissioner of Health

*Handwritten signature in red ink*

December 5, 1956.

Leona Baumgartner, M.D.  
Commissioner of Health  
125 Worth Street  
New York 13, N.Y.

Dear Dr. Baumgartner,

X Many thanks for your very kind letters of October 19th and 25th. I am in full agreement with the general principles expressed in your letter of October 19th. I am less enthusiastic about the proposed code as spelled out in ~~new~~ <sup>your</sup> memorandum dated October 9th. It seems to me that in some sense the code goes too far and in another sense it does not go far enough.

X A. The most important health hazard today (about which the code might do something) is the excessive and injudicious use of X fluoroscopy. The trouble comes not so much from the radiologists, who can keep their equipment busy (and thus can amortize it in a reasonable period of time), without resorting to fluoroscopy when X fluoroscopy is unnecessary. It comes more from the general practitioner who has bought an X-ray equipment and, now, having the equipment, X wants to make use of it. The worst offenders perhaps are the pediatricians who may give a healthy baby a fluoroscopy once every 3 months just to see if everything is all right.

X Clearly the sanitary code cannot regulate medical practice and must not impose any dose limitations on therapy or even on fluoroscopy. But maybe there is something that the sanitary code could do.

Much of the trouble comes from the fact that the doctor is not aware of how big a dose he is giving when he performs a fluoroscopy. He may not wait until he is dark-adapted and may turn up the intensity to make the picture bright enough. It is perfectly alright to do this ~~if~~ if he works fast, but if it takes him a long time to perform the fluoroscopy while the intensity is high, he may do serious damage.

X Now, if each fluoroscope machine were equipped with a gadget that turns off the machine after the patient has received a fixed dose of, say, 3 r (this corresponds to the maximum permissible weekly dose given for a period of 9 weeks), the doctor would be warned. He would remain free, of course, to exercise his medical judgment and to switch on the machine again and he could do this again and again as often as he wishes. But each time, after 3 r, the gadget would switch off and the doctor would have to decide anew whether he wants to give the patient another exposure of 3 r.

It seems to me that if and when a reliable gadget of this sort comes on the market at a reasonable price, the Health Department could issue an approval for that gadget. The Sanitary Code could provide that within six months after such gadgets have been approved by the Health Department all fluoroscopy machines in use must be equipped with such a gadget.

B. Here are some further comments to the proposed code.

I have no objection to paragraph 3 of the proposed code, as it stands, but I want to draw your attention to the <sup>following</sup> fact: The maximum permissible weekly dose, which at present is set at 1/3 of one r per week, is, in a sense, a dangerous dose. An operator

X  
X  
Y  
X  
who gets exposed to such a dose, over a period of say 15 years, will have an increased age specific death rate. This increase, according to my best guess, would amount to more than the present age specific rate of deaths due to cancer. You may say that for such an operator the first most important cause of death will still be heart disease, but the next important cause of death will not be cancer but rather "radiation exposure". This, of course, is not as serious as it sounds, since the life shortening effect of cancer is less than 3 years.

X  
I should add that I am not expressing here an expert opinion, but only my present best guess. I have been approached about a related problem by the Armed Forces Special Weapons Project of the Department of Defense and I expect to have discussions with them on this issue in January. After that, I might regard myself as an "expert" and try to give you some more advice on this point if you still need more advice. In the meantime I merely wish to draw your attention to the fact that the general life shortening effect is probably the most important effect of radiation exposure of operating personnel.

C. I wonder if the proposed code could end with paragraph 4. It seems to me that paragraph 5 does not add anything that could be really effective. In particular paragraph 5 C is so vague that no man would know whether or not he is complying with the code when he is doing what he is doing.

D. I had some discussions with Trude Weiss and E. Racker about setting up studies on the problem of coronary disease and diet and I will send you under separate cover another letter, addressed to you, which deals with this topic.

Sincerely yours,

Leo Szilard

*Corratory*

December 5, 1956.

Leona Baumgartner, M.D.  
Commissioner of Health  
125 Worth Street  
New York 13, N.Y.

Dear Dr. Baumgartner,

I have sent you today, under separate cover, my answer to your inquiries dated October 19th and 25th. Recently I had some conversations with Trude Weiss and E. Racker concerning another topic which I am told is of interest to you, i.e. the possibility of setting up studies to determine by experiment the effect of diet on coronary incidence.

It seems to me that it would be quite easy to determine what effect different diets have on the blood cholesterol level or the level of <sup>say</sup> the Sf(12-20) fraction of the  $\beta$  lipo proteins. On the other hand, to determine the effect of the diet on the incidence of coronary disease on a group of volunteers, who may be willing to change their diet, is an exceedingly tough proposition, which is full of pitfalls.

I am enclosing a memorandum which I have sent on this subject to E. Racker.

I am not a perfectionist when it comes to statistical studies and I am quite satisfied if I can meet reasonable objections, without aspiring at meeting all conceivable objections. Yet I come out with 20,000 men as a minimum size of a volunteer group that might give valid results in a study that covers a

period of 3 1/2 years. This is on the supposition that the men are 58 years old and the group would have to be larger if the men are younger.

If you should really set up some such large scale study - and far be it from me to recommend that you should - you will obtain as a by-product information on the effect of cigarette smoking on the age specific total death rate. In a group of 20,000 men at age 58 there are at least 10% who smoke a pack of cigarettes a day or more and there are probably three or four times as many men who smoke cigarettes only occasionally. If the age specific total death rate of the cigarette smokers is increased by 50% - as the last study of the American Cancer Society seems to indicate - your study would show this with the same degree of assurance as it would show the expected effect of diet on coronary incidence. - I personally am really more confident that you may obtain a significant result with respect to the effect of cigarette smoking.

I have just started to think about these problems and I am not at all sure that I see all the difficulties and have discovered all the pitfalls. For this reason my memorandum to Racker does not represent my considered and final opinion. Perhaps some department of preventive medicine or biochemistry in a medical school of your choosing (or else some research institute that operates in the field of medicine or public health) might be willing to assume the responsibility for preparing a blueprint for the kind of study which you need.

If this does not prove practicable then perhaps you might want to appoint a small - part-time - committee and assign to it the task of preparing the blueprint. A committee of 3 men ought to be large enough, and you would want to make sure that these men have critical ability without being compulsively critical. Clearly, those who prepare such a blueprint would have to work in consultation with the administrative agency that is supposed to carry out the study.



Perhaps I should add one more thing: "A committee is a group of men who individually can do nothing, and who collectively decide that nothing can be done."

You have been warned!

Sincerely yours,

Leo Szilard.

December 10, 1956.

Leona Baumgartner, M.D.  
Commissioner of Health  
125 Worth Street  
New York 13, N.Y.

Dear Dr. Baumgartner,

Since I wrote you last week (Dec. 5th) I learned that the National Committee on the Radiation Protection has decided to reduce the maximum permissible dose to one third of its present value. This will hold for those employed in atomic energy enterprises and the new limit seems quite satisfactory from the point of view of the life-shortening effect. Today's (Dec. 10th) New York World Telegram carries on page 14 a U.P. report carrying this "news".

If there are any questions that you may want to discuss with me, particularly in connection with the letters I sent you last week, you can reach me all through this week on extension 2134, Plaza 5-5800 (Hotel St. Moritz).

With kind personal regards,

Very sincerely yours,

Leo Szilard

*File*



THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

125 WORTH STREET  
NEW YORK 13, N. Y.

December 20, 1956

Dr. Leo Szilard  
The University of Chicago  
Chicago 37, Illinois

Dear Leo:

Thank you so much for the comments in your letters, both about the coronary project and the radiological code. Your suggestions are being most seriously studied and I assure you that the final proposals will look far different than the ones you saw.

We hope to see Kitty about the 1st of February. Is there any chance that you could go down at that time? We still, in the Department, look forward to having Trude with us one of these days.

With the best of the seasons greetings - and please do let me know when you are in town.

Sincerely yours,

*Leona*

Leona Baumgartner, M.D.  
Commissioner of Health



125 WORTH STREET  
NEW YORK 13, N. Y.

THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

*file*

December 21, 1956

Dr. Leo Szilard  
Amico Fermi Institute for Nuclear Studies  
University of Chicago  
Chicago 37, Illinois

Dear Dr. Szilard:

It was very good of you to take the time to study our preliminary write-up of the Diet and Coronary Heart Disease Study, and to send me your very pertinent comments about it. I can only say that I agree with just about every point you have made in the letter and we are actually taking steps to develop our study of the problem along these lines.

Dr. Jolliffe has had some success in maintaining individuals on an obesity control diet over a period of years. His actual data indicate that he has 35% success over a period of five years for subjects who have once participated in his ten week regimen and have actually lost weight properly. This might suggest, if we could carry the reasoning over to the low fat diet that we would need a large number of individuals in the sample at the very beginning of the study but that we would actually be privileged to follow only those who actually are interested in maintaining themselves on the appropriate diet for a period of a few months. This may introduce bias into the final answer but there is no way one can avoid it and still have simultaneous controls. If a subject does not wish to accept a proper diet there is nothing else we can do. In general, we are now working on some preliminary estimates of the size of sample we would need granting that each of our individuals showed a willingness to participate in the diet regimen from six to ten weeks.

We will indeed need to obtain a good deal of information about our subjects in addition to their diets. Smoking is one of the items we will cover as well as family history of coronary disease, exercise and occupation, etc. It is interesting that in your note to Dr. Racker you mentioned our using the coronary group because they can be expected to show results more rapidly. We do intend to have a large coronary group of patients, but all of our consultants caution us against limiting our study to the coronary group alone. It may well be that manipulations of the fat in the diet may be protective before the first coronary attack occurs and still fail to be of any significance once coronary disease has developed.

I was very much intrigued with your suggestion for a "one group" instead of a "two group" study. There is much justification in what you say for the advantage of the one group from the standpoint of the administration and organization of the study. It is natural for research workers to try everything they can to establish a true group of simultaneous controls for a project of this nature. However, we will give very careful consideration to your suggestion during the next several weeks when we are engaging in a series of vigorous attempts to look at this project design from every possible standpoint.

So far we have concluded that it would be essential to provide for a one year period for the performance of various pilot studies. We were rather surprised to learn that there is not adequate information available as to the general blood cholesterol variation of the American male on his normal diet. Moreover we do not have the required information upon which to base the conclusion that a given subject has "cheated" on his diet when increases occur in his once reduced serum cholesterol. We do believe that a 30% fat diet and about 1/4 of the fat in the unsaturated form (i.e. 1/4 of the fat would be of the oil type which is high in unsaturated fat) would be similar to the diets which cause the cholesterol lowerings in other studies which have been performed. Dr. Jolliffe feels that such a diet can be made palatable and would be accepted by a large proportion of volunteers if they wish to make the effort. We would like to try this out to be sure it is both acceptable and capable of lowering blood cholesterol consistently.

Many, many thanks for all of your very carefully considered comments. You have hit the nail on the head when you point out the staggering number of subjects which we will need if we are to reach valid conclusions with the non-coronary group. This alone makes us feel that we wish to study our various procedures and tests in great detail before embarking upon the project itself. I will indeed keep you posted on our developments and will certainly plan to call upon your critical judgement again when we have some more material available. In the meantime please do not hesitate to let me know about any other ideas you have on this subject.

Sincerely yours,

*Leona*

Leona Baumgartner, M.D.  
Commissioner of Health



125 WORTH STREET  
NEW YORK 13, N. Y.

THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

August 14, 1957

Dr. Leo Szilard  
The University of Chicago  
Chicago 37, Illinois

Dear Lee:

In my last communication with you, I promised to keep you informed concerning the latest development on the Radiological Health code.

I am enclosing a copy of the second revision of this proposed article, along with a set of revisors' notes. The many fine comments and opinions we received necessitated this latest revision. You will note that the last section of the revision particularly pertains to the medical applications of radiation, to which your interesting comments are specifically addressed.

Our field investigators report that many of the fluoroscopy machines in use in New York City have timers somewhat along the lines that you suggested in your letter. We are going to follow this matter up very closely, in order to determine whether this is so and whether this is an effective means of preventing over-exposures, and whether or not present practices have to be supplemented by a legal requirement. I especially appreciate this helpful comment.

I hope you will find the time to review this draft, and give us the benefit of your wisdom and thinking in relation to this matter.

Sincerely,

Leona Baumgartner, M. D.  
Commissioner of Health

Encl.

August 26, 1957

Dr. Leona Baumgartner  
Commissioner of Health  
The City of New York  
125 Worth Street  
New York 13, N.Y.

Dear Leona,

Many thanks for your very kind letter of August 14th which I read with interest.

I regret that I will not be able to review the draft which you sent me because of the pressure of other business, and particularly because I am supposed to go to Europe for about six weeks and am overdue already. But I am looking forward to reading the draft you sent me on the plane, and if I see anything that strikes me as particularly important, I may manage to drop you a line.

With very best wishes,

Sincerely,

Leo Szilard



THE CITY OF NEW YORK  
COMMISSIONER OF HEALTH

125 WORTH STREET  
NEW YORK 13, N. Y.

June 26, 1961

Dr. Trude Weiss  
Dupont Plaza Hotel  
Dupont Circle  
Washington 6, D.C.

Dear Trude:

Mysteriously our hardback first copy turned up. I would really love to have it signed. We did so appreciate your thinking of us and having the original first edition sent to us. Incidentally, I don't know if I told you that all my books are going off to Yale some day. The ones they do not want will go to Kansas University, so it is nice to have first printings and inscriptions for future generations to see!

*both*

It was wonderful to see you for a bit. I hope you will let me know what you decide to do.

Sincerely yours,

*Leona*

Leona Baumgartner, M.D.  
Commissioner of Health

P.S.

Why don't you just return it in the enclosed.