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MINUTES OF MEETING HELD JANUARY 21, 1947 AT GENERAL HEADQUARTERS TO RECEIVE AND DISCUSS REPORT OF DR. A. J. LANZA RE. THE STATUS OF DIATOMACEOUS EARTH DUST EXPERIMENT AS DETERMINED ON HIS RECENT TRIP TO THE SARANAC LABORATORY

Present were:

A. J. Lanza
R. W. Lee
A. R. Fisher
A. S. Eisenbast
V. Brown
G. W. Hite
F. H. Armstrong
H. H. Jackson
J. R. Hamilton
J. P. Woodard

Mr. Woodard served as chairman of the meeting.

Opening

The meeting was called to order shortly after 2 P.M. in A.R. Fisher's office. No agenda had been prepared, the meeting primarily having been called for the purpose of hearing a report by Dr. A. J. Lanza, of the Metropolitan Life Insurance Company, summarizing the present status as of the experiments with diatomaceous earth at the Saranac Laboratory.

The chairman dispensed with a review of the industrial hygiene problems at Lompoc which had been covered in a previous meeting, and invited Dr. Lanza to give a report of the information which he had gathered on his recent trip to the Saranac Laboratory.

Report by Dr. Lanza

Dr. Lanza reported that during his recent visit at Saranac he had had access to all the memoranda and notes left by the late Dr. Gardner, and he had talked with practically everybody there who was concerned with the work. Fortunately, Dr. Gardner had had a very capable secretary, but, unfortunately, she had worked for him only approximately one year before he died. While her own knowledge of the experiments did not go back beyond that year, she did have at her finger tips everything that had happened during the year and she was also able to provide from the files substantial information in connection with earlier experiments with asbestos.

Evidently, Dr. Gardner had planned to issue a comprehensive article on Asbestos: its effect on animals, its effect on human beings; as well as related research problems, production problems, the control of dust in different kinds of industrial plants, etc. He had practically finished the part of his report dealing with the effect of asbestos dust on human beings, and had annotated the rest of it, making rough notes and comments.

Dr. Lanza wrote to Dr. Kenneth Lynch at the Medical School in Charleston, S.C., who had been associated with the late Dr. Gardner and himself on a lot of the early work on asbestos cases, informed him of the situation as he had found it at Saranac, and, as far as being able to provide "smooth copies" was concerned, told him it had been arranged to have the late Dr. Gardner's secretary make the necessary copies and forward them. (Incidentally, the Trustees of the Trudeau Sanaterium and Foundation authorized Dr. Lanza to offer Dr. Lynch a fee of $500 to put the material in order.)

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Dr. Lanza has informed Dr. Lynch that the material will be forwarded to him as soon as it is in shape so that he will not have to try to decipher the late Dr. Gardner's handwriting; and he has received a reply to the effect that, after Dr. Lynch has had an opportunity to examine the material, he will determine whether it is possible to put it together in publishable form.

Dr. Lanza plans to leave on a trip to the West Coast about the first of February and has advised Dr. Lynch that he will arrange if possible to have the material sent to him before that time, but, should it not be ready then, it will be transmitted nevertheless during Dr. Lanza's absence.

Dr. Lanza said he would keep in touch with J-M about this, and also about what Dr. Lynch concludes he can do with the material. He stated that there was quite a lot of material and at least the basic part--that dealing with the effect of asbestos dust on human beings--seemed to be fairly complete and he believed it would make a satisfactory report.

Mr. V. Brown inquired as to whether Dr. Lanza thought Dr. Lynch would attempt to produce the entire work covering "asbestos" which Dr. Gardner had had in mind, or whether he would concentrate only on the part dealing with the effect of asbestos dust on human beings; to which Dr. Lanza replied he did not know, since Dr. Lynch would not decide about it until after he had received the notes -- but he was hoping that all of it could be put into some sort of shape.

Mr. Brown referred to the tests with asbestos which Mr. Fehnel, of the Metropolitan Life Insurance Co., had conducted at the Mines some time ago, and suggested that Dr. Lynch might make use of the information obtained from these tests, in connection with the work which he is about to undertake. Dr. Lanza agreed that this might be done.

Mr. Fisher remarked that the company has a definite job to do in Canada to offset the effects of a lot of propagandizing that has been done in relation to the harmful effects of asbestos dust, and he expressed the opinion that a report, if prepared by Dr. Lynch along the lines outlined, would be of material help to the company.

Referring to Dr. Lynch's statement to Dr. Lanza that he would see if the material sent him could be put into "publishable" form, Mr. V. Brown called attention to a stipulation in our arrangement with the Saranac Laboratory which provided that there would be no publication of the results of experiments without our consent. He said, if it does turn out to be the sort of report we would be glad to have published, he hoped Dr. Lynch would not include any objectionable material from our point of view, as, for example, any relation between asbestos dust and cancer, such as the reference which Dr. Gardner had made to this in his monograph. He added, that even though the report contained some material that wasn't too favorable, from our point of view, we still would probably be willing to have it published because of the benefit to be gained from the balance of the report.

Dr. Lanza assured Mr. Brown that the intent of the statement in question was that any report prepared by Dr. Lynch would first be submitted to Johns-Manville before being published elsewhere.

Mr. Fisher commented that he wouldn't want to see any report on asbestos "one thousand percent perfect". He mentioned the eight dust cases which had been filed against the company at Asbestos during the past two or three years, all of which had been summarily thrown out, and commented upon the fact that this quick action with respect to all eight of the cases had had an adverse effect where community opinion was concerned, as the reaction had been none too good.

Mr. Woodard remarked that the ninth case, however, had turned out quite differently, since it developed that the individual involved was reported to have had lung changes and pathological changes, which had not been found in the other eight.

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Dr. Lanza made the observation that very, very few deaths ever have resulted from Asbestosis as such. He referred to the large number of cases which he had followed through, years ago, and which allegedly had been caused by the inhalation of asbestos dust, but in all of which he had found the individuals had been affected by other diseases, such as cancer, Bright's disease, tuberculosis, etc., and none had died from Asbestosis uncomplicated by something else.

Getting back to the progress of the experiments at the Saranac Laboratory, he said the work is going along in good shape on everybody's projects, so far as the ground work is concerned. The technician who has charge of the dusting of animals is extremely capable and probably the equal of anybody to be found in the United States. There has been no let-up in the dusting of the animals, and after the experiments have been run for the required length of time, the animals are killed and their remains sectioned for tests. However, the services of an expert pathologist are necessary to interpret the findings, and that takes time.

Dr. Lanza paid a glowing tribute to Dr. E. E. Packard, who is now Acting Director of the Foundation, when he described as "a very sane, solid individual who 'never rocks the boat'". They had had a very competent pathologist at Saranac by the name of Arnold. During the war he had gone into the service and had finally emerged as head of research for the Navy. Dr. Lanza understood that he was going to become a permanent member of the National Research Council. Dr. Arnold had gone up to Saranac on January 17th, and was still there. Dr. Packard hoped to persuade him to resume his duties there with a title of director in charge of the laboratory. If he does, one of his jobs will be to tackle the tremendous backlog of pathological material and interpret it.

Another new man had arrived to work in the Laboratory, at the same time that Dr. Lanza visited there, and he, too, is engaged on the material. Although they have a crew of good, expert men in the Laboratory at this time—men who thoroughly know how to do the job—nevertheless, when they are through, their part of the job is finished and they can go no further. The co-ordinating head is what is missing. If Dr. Arnold consents to resume his work, it will save a lot of time and trouble that would be involved in orienting a new man. Primarily, the problem now is one of getting caught up on the huge backlog of work, and that is going to take considerable time.

Mr. Brown inquired of Dr. Lanza whether, when speaking about the dusting of animals, he referred to dusting with asbestos, or with diatomaceous earth. Dr. Lanza answered that he meant diatomaceous earth.

In connection with the experiments at Saranac with diatomaceous earth, Dr. Lanza said he had found the notes in Dr. Gardner's handwriting, apparently intended for a report to Johns-Manville. Dr. Lanza copied this material and brought it along with him. He read the copy, as follows:

> "On looking through the notes and records of Dr. Gardner, I find that there were 11 different series of experiments on experimental animals using diatomaceous earth; these included experiments with crude or raw earth, calcined earth, and fluxed calcine. Heating diatomaceous earth to 1710 degrees F. forms free silica with inversion to crystobalite. If quartz is present, there is inversion to trydimite and crystobalite.
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> "Experiments with the calcined earth started on February 7, 1945 with 100 guinea pigs with 50 more projected with a view to supplement the information on raw earth. After visiting Lompoc, Dr. Gardner realized that the investigations would need to be more extensive than originally contemplated.

"One persistent trouble in connection with the dusting of animals with calcined diatomaceous earth was that it apparently caused them an unusual susceptibility to pneumonia and 38 guinea pigs died in the first month, and up to August, 1946, 67 guinea pigs had died from this cause. There were still surviving 11 with 14 months exposure, 14 with 7 months exposure; these to be kept as long as practicable for a study of maximum effects.

"After 10 months exposure the maximum effects of the calcined earth were no definite fibrosis in the lungs, but an unusual foreign body reaction with chronic inflammation and unlike that obtained from the raw. The changes noted in the lymphatics suggested that a fibrosis of the silicotic type would later appear.

"In January, 1946, the dust concentrations were increased without any notable change. This was done for it was thought that the danger of pneumonia was over. One hundred and fifteen more guinea pigs were added.

"Injection experiments into animals, that is, intravenous, intravascular, intratracheal, and into the heart, were all completed some considerable time ago. In general, they show that the raw and natural earth has what Dr. Gardner called a Fins 4 Rating on his scale which goes to about 8 points (tridimite). Also completed were the inhalation experiments with raw Celite, using guinea pigs injected also with a mild type of tubercle. No marked changes were shown from this experiment and no tendency to cause spread of disease.

"Now underway are experiments using calcined earth with intratracheal injection in guinea pigs using Hyflo. By the x-ray refraction method, this have 24% crystobalite. This was the earth calcined with soda ash. Inhalation experiments were carried on with guinea pigs previous to exposure to tubercle infection, along with tubercle infection, and after exposure to tubercle infection. These experiments will continue for at least one more year; also inhalation experiments with Hyflo without any added infection.

"The indications are so far that Hyflo stimulates tubercle infection."

It was felt that the conclusion reached at the end, to the effect that the indications are that Hyflo stimulates tubercle infection, was rather disturbing and was the part of the report that might give us some concern. Dr. Lanza was asked for his opinion as to how much time would be required before a definite conclusion could be reached about this, and he stated that it probably would take until the end of the year; he thought the technician who has charge of the dusting of animals would have to carry on his experiments for the rest of the year, and, by the time he gets through, the pathologist will have been able to catch up with his interpretations of the slides. He added, that when he gets back from his trip to the West Coast, about the first of June, he would like to go back to Saranac, as soon as possible after that, to find out just what progress has been made.

To an inquiry from Mr. Elsenbast as to whether 'the indications are that Hyflo stimulates tubercle infection' was the late Dr. Gardner's opinion, Dr. Lanza replied that it was not, but that it was Mr. Delehan's impression, and that he is considered a very experienced man. Mr. Elsenbast inquired further whether there was any evidence that Dr. Gardner had reached any such conclusion himself; and Dr. Lanza answered in the negative.

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Mr. Elsenbast also referred to a previous request he had made, that Dr. Lanza check, if possible, at Saranac on the dusting experiments with a sample of diatomaceous earth which had come from the Gerhart Refractories, which was found to contain chrysotebilite, and which had produced the results that had influenced Dr. Gardner thinking. Lompoc has shipped natural powders to Gerhart, but has never shipped fluxed calcined material to them, and inasmuch as we had never seen the particular sample of material in which Dr. Gardner first detected chrysotebilite, Mr. Elsenbast felt it was of interest to determine the source and origin of that sample. This prompted his inquiry as to whether Dr. Lanza had found any reference to it in the late Dr. Gardner's notes.

Dr. Lanza stated that while he had not been able to make a check on this sample, he thought it would not be difficult for anyone to obtain the desired information by writing to Saranac, as they probably could provide it from the record they keep there of numbers covering the different samples used in experiments.

Mr. Brown expressed doubt that Dr. Gardner had carried on any dusting experiment with the sample in question. The "Gerhart" sample had given him the clue and, in following up that clue, he had analyzed some Lompoc fluxed calcined material and found a substantial percentage of chrysotebilite in it. He knew, when he found material with this percentage of chrysotebilite, that he had a "bad actor".

Mr. Elsenbast contended, however, that the Gerhart material--to which a man's death had been attributed, could have been a product of different properties from Hyflo, or the percentage of chrysotebilite it contained might have been greater than in Hyflo, and for this reason he believed it important to try to establish the source and origin of the Gerhart sample.

So far as Lompoc material was concerned, Mr. Elsenbast thought it should be established whether or not the physiological effect is caused by the particle size of the dust inhaled, or by the chemical make-up of the material.

Dr. Lanza observed that the asbestos product produces the effect mechanically. With materials that are chemically active, however, he said the finer they are, the more active they are. His impression was that the technician at Saranac takes the Hyflo powder just as he receives it from Lompoc (which is the regular commercial grade), and that it has many particle sizes in it. He promised, however, to write to Saranac and inquire whether it was used just as it was received, or whether any effort had been made to separate it and use different particle sizes in the dusting experiments. He added, that he believed the technician would routinely determine what the average particle sizes were.

Belief was expressed, however, that the determination of such facts would have no effect in changing the industrial hygiene problem at Lompoc or the experiments being made at Saranac. Both fine and coarse materials are involved in the problem affecting Lompoc, and it was felt that no further time need be lost in coming to a decision as to what must be done to control the dust situation at that plant.

Closing

Before leaving the meeting, Dr. Lanza offered his services in any capacity while on the West Coast during the next four months. He was informed of the company's desire to engage a competent Ventilation Engineer at Lompoc. He said he would keep this in mind and let Mr. Elsenbast know if he comes across an applicant whom he could recommend.

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There mention was made of the text book which will deal with 'Silicosis', and on which Dr. Johnson, of Los Angeles, is presently engaged in writing. Dr. Lanza stated that he knew Dr. Johnson well and doubtless would discuss with him, at Los Angeles, his recent request that we provide for the book any material on diatomaceous earth which we know to be sound.

Mr. Brown suggested to Dr. Lanza that, should he have occasion to talk with Dr. Smart in Los Angeles, he might want to discuss with him a recent report he had made of a case where he believed diatomaceous earth had had the effect of retarding, or scaling off, the progress of tuberculosis in a certain individual who, if he had been an ordinary case, would have died at a much earlier date than he did.

Mr. Lee said he hoped Dr. Lanza would visit Lompoc during his visit to the West Coast. Dr. Lanza assured him that he expected to; and Mr. Fisher suggested that, when he visits the plant, he sit down and talk over industrial hygiene matters personally with Mr. Westcott, rather than with a group of five or six people. Mr. Westcott, he said, had a more intimate and thorough knowledge and understanding of the whole problem which he could better impart in a conversation alone with Dr. Lanza than he could if a larger group were called in.

Mr. Lanza asked Mr. Kleinhans to inform Mr. Westcott that he probably would visit Lompoc sometime during the latter part of February.

Mr. Woodard assured Dr. Lanza that all those present felt quite relieved over the notes he had been able to obtain from Dr. Gardner's files, as well as the report he had made on the experiments in progress at Saranac, for it now seemed apparent that the company would get practically all that it would have got had Dr. Gardner not died, except, of course, his own expert interpretation of the experiments.

J. R. Hamilton

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