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MINUTES OF THE MEETING AT KETTERING LABORATORY
June 22, 1956

Present: Dr. Raymond R. Suskind, Kettering
Dr. Julin Fann,
Dr. R. C. Wallace, Monsanto, Nitro
Mr. C. F. Luecke, Monsanto, Nitro
Mr. K. L. Godfrey, Monsanto, Nitro
Mr. E. P. Wheeler, Monsanto, St. Louis
Mr. P. N. Bowles, Blagg, Stone, Mauzy,
Anderson, and Bowles
Mr. L. C. Weger, Monsanto, Nitro

- 1 Dr. Suskind presented the group with copies of a written summary of the experimental work done at the Kettering Laboratory during the past several months. A copy of this summary is attached. Dr. Suskind elaborated on the work covered by the report and by sketching a cross-section of the skin explained to the group how chlor-acne affects the hair follicle and the sebaceous gland. Dr. Suskind pointed out that the percent concentration and total dose referred to in the table in his summary represents the sample in each case and not actual trichlorophenolate. It was not possible to use higher concentrations of Sodium TCP because of the extreme irritation of the skin so that while the Halowax was applied as a 20% concentration the maximum concentration of any of the TCP samples was 7% and in some instances was held as low as 2.5% or 2.45% and 0.78% trichlorophenol.

Even in view of the differences in concentration, Dr. Suskind found our normal Sodium Trichlorophenolate producing definite chlor-acne. The Sodium Trichlorophenolate prepared from distilled trichlorophenol gave by comparison a mild reaction and with the exception of one slide seen from one of the four subjects used, there was no evidence of actual chlor-acne. The reaction to the material prepared by the Diamond Alkali purification process (dilution, filtration, and precipitation) was less marked than the sample prepared by distillation.

Dr. Suskind indicated that future work at Kettering might extend along similar lines to further clarify whether purified materials were actually non-acnegenic or that work might be undertaken to :

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determine such other information as would be of interest to Monsanto. Dr. Suskind will be on vacation through the month of July so that no further work could be initiated before some time in August.

- II Mr. Elber Wheeler discussed his recent visit with BASF in Germany. He stated that essentially all the pertinent information is contained in his memorandum and emphasized that the people at BASF were very anxious to exchange information with Monsanto and Kettering on all phases of the problem. He was given the impression at the time of his visit that they were prepared to exchange all information including process data, but that it was not possible at the meeting since he did not have Monsanto process information with him. It appeared to Mr. Wheeler that the symptoms and complaints manifested by the workers in the German plant paralleled the Monsanto experience, but it was his opinion that the German cases were probably more severe. Dr. Oettel of BASF seemed particularly interested that the Monsanto cases had also presented objective complaints suggesting peripheral neuritis.

It was agreed that Mr. Wheeler will request approval from the Organic Division for exchange of information with BASF, and it is anticipated that Dr. Suskind will correspond directly with Dr. Oettel, and that someone at Nitro will be designated to carry out the exchange of such plant information as is approved. Each party conducting correspondence will provide the other party and the Monsanto Medical Department with carbon copies of all materials sent and received.

- III Mr. Paul Bowles discussed certain aspects of the chlor-acne claims now in litigation and reviewed for Dr. Suskind's benefit some of the medical aspects which have been alleged by the physician for the claimants. The possibility of Dr. Suskind appearing as an expert witness was discussed and it was apparent that Dr. Suskind feels that there was minimal evidence of liver disorders and in one case, evidence of nerve damage in people examined in 1949. He stated that there was no sign of such disorders in any of 35 people which the Kettering Group examined at Nitro in 1953. Dr. Suskind strongly urged that consideration be given to publication of all of the experimental results

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~~discussed~~ to date so that it could be used most effectively in defending Monsanto's position. It was pointed out that none of the group present was in a position to give approval for publication but that the matter would be considered.

IV Mr. Larry Shaffer, Industrial Hygienist at Kettering Laboratory, was invited to the meeting to clarify some questions concerning analysis of air sampling done at Nitro in February, 1956. He stated that vapor samples were reported as parts per million of organic chloride and that where dust samples were taken they were reported as Mg/M solids and in cases where figures were given in Mg/M of 2,4,5-T that this had been derived by burning a sample of the solid material collected, determining the chloride content and calculating back to 2,4,5-T. He stated that he felt the survey was quite accurate and reflected operating conditions with the possible exception of the two samples taken at the rotoclone where variance in operation might throw the sample abnormally high or low.

V It was agreed that the question of submitting samples to BASF for experimental work would depend upon the outcome of the initial correspondence.

Evaluation of the work reported by Dr. Suskind for possible process and engineering work will be done by the group at Nitro.

The question of future work at the Kettering Laboratory will be considered along with the possibility of experimental work at BASF.

L. C. Weger

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Mr. Bowles gave Dr. Spiskind a complete set of the summaries
of the legal cases on which evidence has been accumulated to
date.

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November 12, 1955

Dr. H. F. Smith

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On November 17, Mr. McClain and I accompanied Dr. Suskind of the Kettering Laboratory to a meeting at the Workmen's Compensation Commission in Charleston. Representing the Commission at this meeting were the Occupational Disease Board composed of Drs. Erick, Biern, and Aliff, Mr. Jack Canterbury, Legal Assistant, Mr. Harry Boss of the Occupational Disease Division.

Dr. Erick presented a copy of a report by Dr. H. F. Smith and Dr. R. E. Kelly addressed to Mr. Paul Halley dated 1950 and asked Dr. Suskind to comment on the findings reported. Dr. Suskind said that he is familiar with the report and commented on the technique employed reporting that Drs. Adams, Spencer, and Irish who originated this technique using the ears of rabbits have since abandoned it. Kettering Laboratory has attempted to duplicate some of their work and have found the same epithelial hyperplasia and folliculitis as reported, but no acne was produced. Dr. Suskind states that it is not possible to pre-determine acneogenic properties of new compounds by this rabbit ear test.

Dr. Erick inquired if there was any difference histologically between acne vulgaris and chlor-acne. By use of diagrams Dr. Suskind showed the comparison of the two types of acne and stated that histologically the two are the same with the exception that chlor-acne lesions contain somewhat more free cholesterol.

Dr. Biern asked what causes acne. Dr. Suskind said that this is a very large question and that there are many things yet to be learned. However, it is believed that acne vulgaris is induced in the male by testosterone and in the female by progesterone. This opinion is based on considerable experimental work with animals but does not preclude the effect of other androgenic substances. Chlor-acne has only recently been produced experimentally at the Kettering Laboratory by applying Calowex 1011 in 20% concentration or higher to the human forearm for one week or more. It is certain, therefore,

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that materials in contact with the skin can produce chlor-acne, but the possibility that it may be produced by other means is not ruled out.

Dr. Biern asked whether skin reaction can be due to stress phenomena or from a fear overlay. Dr. Suskind said he would be afraid to hazard a guess, but work has been done at Cornell University with young acne vulgaris patients subjected to interview stress. Measurement of sebua output showed a stress increase of as much as 400% in acne cases only; in non-acne cases the increase was very slight. Whether this pertains to Monsanto chlor-acne cases is difficult to say.

Dr. Brick inquired whether the material which the board saw being packaged during their plant tour was 2,4,5-T and was told that it was. He then asked whether that was the material which was given to Dr. Suskind for testing, and Dr. Suskind replied that that was one of the materials submitted. At this point Dr. Brick talked about the air survey made by the State Department of Health, and when a copy of their report could not be found, he talked to the State Industrial Hygienist. He seemed distressed at the report that all samples had shown measurable amounts of 2,4,5-T whereas he had been given the impression that there had been nothing discovered. He has requested the Industrial Hygienist to furnish the board a copy of the survey report. At this point he insinuated that Monsanto could be more careful in handling the 2,4,5-T and spoke of seeing continuous automatic packaging operations at the duPont plant. Dr. Brick also inferred that much of the information concerning the chlor-acne problem had at one time or another been held secret from the board. His impressions on these two matters did not appear to be reflected in the other board members.

Dr. Suskind told briefly of the animal test done with 5% solution of various materials from the 2,4,5-T process and with Halowax 1014. He reported that there was no reaction or change in any of the animal studies or in human subjects exposed to the same 5% concentration.

Dr. Suskind then described the work using Halowax 1014 and recrystallized 2,4,5-T on animals and humans. He reported that no acne or skin manifestation had been induced in any of the animals by either of the materials but that on human skin chlor-acne had been produced with the Halowax, but there was absolutely no reaction from the 2,4,5-T.

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The conference continued with conversation dealing with the overall aspects of the chlor-acne problem, and R. Hiern read excerpts from the transcript in the recent Dewey Garton hearing for Dr. Suskind's benefit. The meeting seemed to be appreciated by the commissioner's representatives, and it is believed that a favorable impression was created.

Both John McClain and I feel that in view of Dr. Brick's somewhat critical comments, we should prepare a fairly comprehensive story of the entire chlor-acne situation which should include not only the experimental work done at Mellon and Kettering but investigational work done in the plant in connection with the autoclave incident. We believe that this should be made available to the Occupational Disease Board together with copies of any reports which we have that have not been made available to them. Such information can be given to them with the stipulation that it is for their evaluation only and is not to become part of the public records.

At the end of our conference at the commission offices, Dr. Suskind together with McClain and I discussed our problem with Mr. Paul Boyles and Mr. L. G. Stone at their offices. Both Dr. Suskind and Mr. Stone feel that it would be wise for us to follow up on the Kettering recommendation that periodic air sampling be made in the 2,4,5-T plant. Both McClain and I expressed doubt as to the value of information so obtained unless it be used to counter Dr. Halloran's accusations.

We discussed the findings of Dr. R. H. Westmann concerning psychoneurosis in most of the employees he has examined for us. Mr. Stone is apprehensive as to the implications that may be drawn if this is submitted as evidence. The attorneys and Dr. Suskind all read a paper which I obtained from Dr. Westmann concerning some of his evaluations on other patients using the Cornell Medical Index, and Dr. Suskind suggested that he could have an opinion on the value of this type of testing from Dr. J. D. Ross a psychiatrist at the Kettering Laboratory. I indicated to him that we would be interested in such opinion.

The future work which has been outlined for consideration at the Kettering Laboratory was reviewed with the attorneys, and Mr. Stone made the point that while distilling the phenol may eliminate chlor-acne, it may not change the incidence of "Halloran's Disease."

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