February 3, 1971

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Dear Dr. Quinby:

Thank you for your letter of January 20, which arrived on the 27th, at which time I was out of town and just returned.

I appreciate very much your interest in the polychlorinated biphenyls and am happy to reply serially to the questions raised in your letter concerning the "Monsanto Statement on PCB" printed in Environment, Vol. 12, No. 1.

May I preface my answers with the comment that we take no responsibility for Dr. Risebrough's statements in the publication and I am assuming that your questions relate to the Monsanto statement published therewith.

Now, as to your questions:

1. The Monsanto statement supplied Environment Magazine was prepared with my collaboration and approval.

   My interest in the toxicity of and occupational hazards involved with the polychlorinated biphenyls and terphenyls dates back to 1936. I recall vividly the first meeting held at Harvard under the sponsorship of Dr. Cecil Drinker to discuss the early results of research carried on under his direction on the chlorinated biphenyls

and chlorinated napthalenes [Ref. J. Ind. Hyg. Toxicol. 19, 300 (1937)]. You may be sure that the Medical Department at Monsanto has been aware of all subsequent publications relating to the toxicity of chlorinated biphenyls and terphenyls.

The literature indicates that there was a number of incidents of industrial effects in the late 1930's from the use of a waxy material composed of chlorinated napthalenes, chlorinated biphenyls and chlorinated diphenyl ether. I submit, however, that there have been few instances reported since 1940 concerning ill effects in workers exposed to the chlorinated biphenyls or chlorinated terphenyls when used alone. In the rare cases that have been reported, the recommended procedures for safe handling and usage have been ignored.

2. Monsanto has been aware that in the early and mid-1950's there was some use of PCB's as extenders for pesticides where the formulations were applied to field crops or, in the case of research sponsored in New York State not participated in by Monsanto, on forests for attempted control of elm tree disease. These experiments were based on research efforts of the USDA. As far as our records indicate these were abortive attempts in using the PCB's in "broadcast applications" on perhaps all kinds of crops. The facts as we know them are that uses never did develop where the PCB's were incorporated in formulations for "broadcast applications" to agricultural crops such as vegetables, animal feed, cotton, citrus, etc. I don't have exact figures but I would estimate that something less than 100,000 pounds of PCB's were ever used in experimental or semi-commercial applications. To me and to our company this does not represent "broadcast application" as the term is generally used now and as it relates to the application of most common agricultural insecticides.

3. Most of the <u>possible</u> uses of PCB's recommended as possibilities in our Technical Bulletin O/PL-306 remained as possibilities. It is true that PCB's were used in specialty (industrial, corrosive resistant) paints; in specialty rubber for sealants (not automobile tires as has been alleged); in specialty adhesives for many purposes. They were not widely used in lubricants or cutting oils. I don't know what is meant by "carburator fluids".

As to whether or not such uses could lead to the PCB's getting into the environment, I wonder if in late 1969 when we supplied the statement to "Environment" you would have predicted the current situation as regards mercury.

4. We have not had any cases of occupational illness in our workers manufacturing PCB's, with the one exception mentioned (page 307, J. Ind. Hyg. Toxicol. referred to above).

As I have indicated earlier, there were incidences of occupational illness in the late 1930's and perhaps early 1940's. I believe the facts are as indicated above that these were from uses where the polychlorinated biphenyls were used in conjunction with other chlorinated hydrocarbons. I would also point out that the number of instances may have been exaggerated since at that time one state health or labor department after another published bulletin after bulletin referring to the original cases. In this way there may have been some magnification of the seriousness of the situation. I repeat again for emphasis that we know the cases that occurred did not involve the use of polychlorinated biphenyls alone.

In the mid-1950's we sponsored work at Kettering Laboratory (see reprint enclosed) which I believe is the most definitive in terms of potential occupational hazards that has been done.

Since the question of possibility of the PCB's getting into the environment came to our attention we have undertaken a number of research and other projects. These have been such that I can honestly say that I am proud of the way Monsanto has responded to the situation.

We have, for example, undertaken chronic animal feeding studies such as would be required if we were to consider applying for a food additive petition with the FDA. As data have been forthcoming on an interim basis from these studies, we have provided copies of the data to representatives of the Office of Science and Technology of the President, to the Food and Drug Administration, the U. S. Department of Agriculture, the Fish and Wildlife Service, the Federal Water Quality Agency and other toxicologists

in the United States and abroad. A status report on these studies has been accepted for presentation at the 1971 meeting of the Society of Toxicology.

Briefly, I believe that all of the toxicologists who have reviewed the data concur that PCB's are no more and probably less toxic than DDT. This has been most reassuring to us in terms of whether or not any PCB in the environment is a threat to the public health.

Equally important, we have ceased all sales of the polychlorinated biphenyls in those applications where escape to the environment cannot be prevented. Use in electrical transformers, on the other hand, will continue but with provisions that the fluid in the transformers will be returned to Monsanto for incineration if it cannot be reclaimed for reuse. In short, we no longer sell polychlorinated biphenyls for uses which cannot be controlled.

I would hope that you would agree that Monsanto has reacted in a most responsible fashion. I would hasten to add, however, that any action on the part of my company has been based on the development of sound data developed by ourselves and responsible scientists. It has not been reaction to political pressure nor the more activist scientists and pseudo-scientists who, I know you appreciate as much as I, have become so prominent in today's emphasis on restoration and enhancement of the environment. Please understand I agree completely that there has been and continues to be deterioration of our environment. I am convinced, however, that steps for improvement must be taken on a rational and objective basis.

In conclusion I feel Monsanto has taken a realistic attitude towards the PCB's based on facts as they have developed. At no time have we made efforts to conceal the truths about PCB's. Should you have any facts in your possession that indicate otherwise, I would be happy to receive them.

Very truly yours,

DSW 018472

R. Emmet Kelly, M. D.
Medical Director

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Enclosure (Tox. of Vapors of Aroclors 1242, 1254; HGS on Chlorodiphenyls)

b.c. W. B. Papageorge