MONSANTO CHEMICALS LIMITED
RESEARCH AND DEVELOPMENT DEPARTMENT
RUABON

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INDUSTRIAL CONTACT REPORT

AT: The Nature Conservancy,
Monkswood Experimental Station,
Abbot's Ripton,
Huntingdon.

BY: R.A. Baxter
R.A. Lidgett

DATE: Friday, November 31st (a.m.)

PRESENT: Dr. N.W. Moore, Head of Toxic Chemicals & Wildlife Div.
Mr. J.L.F. Parslow, Information Officer
Mr. M.C. French, Chemist
Dr. D.J. Jeffries, Toxicologist
Dr. I. Prestt, Ecologist.

OBJECTIVE:

This visit was arranged to discuss the recent findings of Monkswood concerning the deaths of sea birds in the Irish Sea and also to establish an initial contact. Attached to this report are leaflets describing the objectives of the Monkswood establishment and of the Toxic Chemicals and Wildlife Division of Monkswood.

All of the people met at Monkswood belonged to the Toxic Chemicals and Wildlife Division headed by Dr. N. Moore (see Appendix). The role of this division is to study the effect of pesticides upon wildlife. It has its own analytical facilities, but can call on other government departments for specialist analytical work if necessary.

The interest of Monkswood in P.C.B.'s has been derived from their pesticide work and they are becoming increasingly involved in studying, along with DDT pesticides, the effects of P.C.B.'s on wildlife, e.g.

(a) An extensive study of the River Witham is being carried out in conjunction with Shell (Richardson). Monkswood monitor natural specimens for DDT, DDE, Dieldrin, P.C.B.'s etc. while Shell analyse mud algae etc. They are at present awaiting results from Shell and the report should be available by the end of 1969.

(b) Jeffries is studying toxicity effects and has extended a study of the toxic effects of DDT on finches to include effects of P.C.B. He would like to contact U.S. workers for information on toxicology of P.C.B.'s and to compare notes.

(c) Extensive analytical work on the levels of P.C.B.'s in sea birds from the recent Irish Sea incident, is being carried out.

Monkswood are very interested in how P.C.B.'s are released into the environment, although their strict remit is to study effects. They point to the widespread use of P.C.B.'s in industry as cutting oils, lubricants, plasticizers and their consequent wide distribution.

The use of P.C.B.'s in jet aircraft oils was mentioned as a possible source of atmospheric contamination. Monkswood questioned whether there had been a change in pattern of usage of P.C.B.'s to account for their apparent increase in nature - increase in nature is not considered proven, as it is only recently that methods of sufficient sensitivity for the detection of P.C.B.'s have been developed. They also questioned the use of P.C.B.'s combined with pesticides (such as B.H.C.) as volatility reducing agents.

Irish Sea Incident

This was discussed in some detail and without reservation.

Approximately 10,000 birds have been killed, greater than 90% of which were guillemots - not razor bills. The maximum deaths occurred about the end of September and these coincided with severe gales and the moulting season, when the birds would be in a relatively weak state. Dead birds are still being picked up, but the places where they are found are not necessarily where the deaths occur. It was pointed out that the Irish Sea is rather enclosed and the birds are local (many were ringed). Some of the birds picked up were moribund, no analyses have been carried out on birds considered in normal health when taken.

Monkswood have been carrying out a limited monitoring of P.C.B.'s and pesticides in birds taken from the Mull of Galloway and the analyses on the recent birds has shown an increase in P.C.B. level in livers of approximately 10X. They stress the fact that they are interested largely in relative amounts of P.C.B.'s and accept that the absolute accuracy of the gas chromatography (electron capture, Aroclor 1254 standard) method cannot yet be determined.

Results from the recent incident have been checked by the Laboratory of the Government Chemist. At present approximately 100 birds are being examined for various abnormalities and so far only the P.C.B. levels are abnormal. The results reported in the press referred to 8 guillemots, all of which had high P.C.B. levels. No attempt is at present being made to carry out a statistical analysis of results, some birds are being sent for examination without P.C.B. determination, but the majority will probably be examined for P.C.B.'s. They do not regard the connection between P.C.B.'s and deaths as proven, nor do they think that the food cycle is necessarily responsible in this case for P.C.B. assimilation - this could be related to absorption through the skin from an oil film on the surface of the sea. As guillemots feed further out than razor bills this may be a local effect - possibly from dumping. It is also considered that deaths could be due to a virus infection and factors such as the almost total restriction of the deaths to a single species tend to support this theory.

At the present time no analyses on fish from this area have been carried out by Monkswood.

Monkswood were generally co-operative and are not sensationalists. They welcome contact with Monsanto and have promised to keep us informed of new developments. We have promised to reciprocate and specifically to advise on information and contacts in the Toxicology area and to keep in touch on analytical methods.

R.A. BAXTER

R.A. LIDGETT

RAL/meh
4th November, 1969