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Gene Wilde - General Offices

February 13, 1967

EVIL PUBLICITY ON
CHLORINATED BIPHENYLS

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Here is a brief summary of what we discussed during our meeting February 8 in your office.

We reviewed the information we have received so far on the adverse publicity in Europe on polychlorinated biphenyls. For the record, we have received the following published information.

Letter from Dunnar Widmark of the Institute of Analytical Chemistry, University of Stockholm, dated December 29, about his Mr. Jensen defining some of the unknowns in his analytical work as polychlorinated biphenyls. Attached to this letter was a report on the presence of polychlorinated biphenyls at residue analysis of biological samples written by Mr. Jensen and Dunnar Widmark.

Dave Wood of our Brussels office sent us the LKB press release of January 10, 1967, about the Swedish success in detecting the polychlorinated biphenyl.

A memo written by Dave Wood dated January 26 summarizing his visit with Jensen.

The January 30, 1967, issue of Chemical Engineering, page 52, makes comment about the work on polychlorinated biphenyls in Sweden. This was the first published information in the U. S.

December 15, 1966, the New Scientist Magazine, carried an article about a new chemical hazard, also reporting the work that had been done by the University of Stockholm.

Essentially, all of these reports covered the same items.

Due to the importance of the Aroclor products to the Organic Division, we decided on the following plan of action. Since all of the action required falls within the realm of your authority, you accepted the responsibility to follow through on the following:

EXHIBIT
WBP M-8

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1. Prepare a statement or letter for use by Marketing with customers who inquire about this publicity.

2. You will talk to Dan Forrestal on preparing a press release and hold it until such a time that we feel as though it should be released.

3. Give some thought to how we would approach this problem on a toxicological and pharmacological basis.

4. Talk to the MCR people after we define the person to contact.

5. Arrange for contact with Bayer and Prodalac.

Two questions that kept coming back to our minds during the meeting were that in all of the propaganda published, there has been nothing about the levels that have been found particularly in the air and no one has defined anything about what level would be considered harmful. Bob Keller brought out the fact that there must have been other products found in this complete analysis and he would be interested in knowing what other things were found.

All of these actions need immediate attention with the exception, of course, of the gathering of the toxicological and pharmacological information.

Please do let me know if there is anything I can do or any way I can help in getting these actions started and getting our information together so that we can make sure our Aroclor business is not affected by this evil publicity.

Gene Wilde

/bjk

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Conservationists have another chemical to worry about, one that apparently accumulates in fish, birds, animals and people much like DDT. Called polychlorobiphenyl (PCB) in Sweden where its presence in nature was first discovered, the chemical is known as chlorinated biphenyl in the U.S. Though not made in Sweden, the chemical is used worldwide in transformer oils, lubricants, paints and solvents.

A Swedish scientist says PCB first appears in museum-preserved sea eagles dating from 1944, and that it is now present in high concentrations in fish, fish spawn, birds, seals, and human adults and children. The Swedes attribute widespread distribution of PCB—it has been detected in the air of London and Hamburg, and in seals off Scotland—to air pollution resulting from industrial uses and from incineration, which does not destroy the chemical. The extent of the hazard, if any, is not known. And U.S. sources say they are not aware of any such problem in this country.

"Take me to the moon" remains a wish in song only for most women, except for the dozen or so who joined about nine hundred men in answering the National Aeronautics and Space Administration's (NASA) latest call for scientists-astronauts (*Chementator*, Sept. 26, 1966, p. 59). At the deadline, Jan. 8, only 939 doctorate engineers and scientists had filed applications out of an estimated 20,000 qualified persons in the country. Engineers comprised 27% of the applicants.

The National Academy of Sciences (NAS) will pre-screen the applicants for NASA, which will select twelve of the survivors before August 15. No estimate of the women applicants' chances of selection is available.

Even as the United Steelworkers asked the U.S. Supreme Court to overturn an injunction that forced striking members back to work at Union Carbide Corp.'s Kokomo, Ind., plant (*Chementator*, Jan. 16, p. 81), the company appealed last week to a W. Va. court to set aside an unemployment compensation award to its Alloy, W. Va., employees. The W. Va. Dept. of Employment Security said on Jan. 6 that 1,060 Alloy employees were entitled to compensation for the nearly three months the plant was shut down between July 2 and Sept. 22, 1966. The National Labor Relations Board had branded that shutdown as an illegal lockout (*Chementator*, Nov. 7, 1966, p. 97). When Carbide reopened the plant, the employees struck. They are still striking.

Power plants and the state of New Jersey got most of the blame for high sulfur dioxide (SO_2) levels in the New York-New Jersey metropolitan area—the power companies because they produce most of the pollutant, and New Jersey because it has no rules to cope with the problem.

These were among the conclusions of the lengthy N.Y.-N.J. Interstate Air Pollution Abatement Conference held in New York this month (*Chementator*, Jan. 16, p. 82). The Conference, though recessed, technically remains in session until a permanent body is established. Among the recommendations were these:

- Federal representation, with a vote equal to the states, on the interstate body. The U.S. wants an entirely new agency, while the conferees prefer to expand the authority of the existing Interstate Sanitation Commission.
- Application of New York's ambient-air quality objectives to the entire area.
- Power plants not to burn fuel exceeding 1% sulfur after Oct. 1, 1969, unless the plants are equipped to deal adequately with SO_2 emissions.
- No new generating plants to be permitted unless a 20-yr. supply of low-sulfur fuel can be guaranteed.
- New sources of SO_2 emission to be limited to 500 ppm., and existing sources limited to 2,000 ppm.

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TOXICITY / INFLAMMABILITY.

NEW SCIENTIST. 15 Dec 1966.

NOTES ON THE NEWS *continued*



for various purposes such as hoeing. At the National Institute of Agricultural Engineering, Howden, Midlothian, some interesting new attitudes are developing, however. For one thing herbicides have eliminated the need for close manual procedures which means that it is no longer necessary to grow all crops in single rows. There would be distinct advantages in growing potatoes, for instance, in beds as wide as three or four rows. It would be more economical of land, earthing-up could be done quicker, and the soil would suffer less from the compressional damage done by agricultural machinery.

There is a drawback, however. Traditional tractor design does not permit the use of wide strips; and no one elsewhere seems to have given much thought to ways in which tractors could be improved. At NIAE engineers have had a hard look at what farmers are going to need in the future and have designed an impressive "self-propelled, multi-purpose toolframe", which could well come to dominate our rural landscapes in a few years' time. Essentially it consists of a large box frame, supported at chest-height on conventional tractor wheels—a large pair at the front and small pair at the rear corners. At the front of the frame in the centre is a powerful, 70-horsepower tractor engine coupled to the driving wheels by independent oil-driven hydrodynamic motors.

The driver sits high up on the rear member of the box frame in a seat that can be hydraulically shifted from side to side, or turned right round to face the reverse direction. He has two levers at his left hand: both forward gives a range of forward speeds; both backward, reverse speeds. By moving them independently the wheels will revolve at different rates and assist turning. The rear wheels are telescopically mounted and can be raised or lowered hydraulically. They are self-levelling over uneven ground. Agricultural implements are mounted—without the need for soil-damaging wheels—in the centre of the box frame. Implements, likewise, can be designed for hydraulic operation and the frame is equipped with two large oil tanks at each front corner and several hydraulic take-off valves. The whole contrivance is simplicity itself to control.

A planting unit has now been constructed that will plant and ridge four rows of potatoes in one operation. Work is also in progress on a double-row harvester.

That tractor wheels are indeed harmful to soil has emerged from a unique field study at the institute. Using a gamma-ray probe and detector, researchers there have been able to observe for the first time the actual local profiles of soil density across tractor ruts, plough furrows and the like. They have related these to the failure of plants such as raspberry canes to grow where the soil has become compacted. Clods are also typically the result of the passage of heavy machinery across the soil so that cutting down the extent to which tractors and wheeled vehicles run over the soil will undoubtedly improve production.

This is by no means the only application of modern methods of science to farm mechanization at NIAE. Novel work under way aims at automated singling of sugar beets. Again it is herbicides like paraquat that have made such advances possible. Manual thinning by hoe is tedious and expensive. The plan is to use a machine equipped with photoelectric detectors sensitive to the spectral absorption lines of the green chlorophyll pigment in leaves. Signals from this device, indicating the density of foliage, will control a paraquat spray which will squirt the excess plants, leaving only those required at specified intervals for optimum growth.

Engineering data during field trials on new equipment is about to be collected by radio telemetry, and modern data-processing methods are under development at NIAE.

REPORT OF A NEW CHEMICAL HAZARD

A Swedish research worker has expressed concern over the increased amounts of polychlorinated biphenyl (PCB) entering the air, presumably from industrial smoke and rubbish-dump smoke, and being absorbed by water and taken up by fish and later humans. PCB which is related to and as poisonous as DDT was detected by Mr Sören Jensen of the Institute for Analytical Chemistry, University of Stockholm, in some 200 pike taken from different parts of Sweden, fish and fish-spawn throughout the country, an eagle which was found dead in the Stockholm Archipelago, and in his own, his wife's and his baby daughter's hair. As the baby is only five months old her father concludes that she got her dose of PCB with her mother's milk.

It is not known at present how much of this substance is dangerous or even fatal. If it is comparable with DDT then the limit would be 0.5 mg per cubic metre of air—and, for comparison, the dead eagle had at least 10 times as high a concentration in its body. For purposes of elimination Mr Jensen has obtained feathers from eagles preserved at the Swedish National Museum of Natural History since 1880 and has detected PCB first in an eagle from 1944.

In Sweden, PCB is known to be used in electrical insulations, hydraulic oils, high-temperature and high-pressure lubricating oils, paints, lacquers and varnishes, and as pigments in various plastics. It does not seem to be used as an insecticide. It is not destroyed by incineration and may enter the body directly through the skin, by breathing, or by way of food (especially fish). It is particularly harmful to the liver, and also the skin; this has been demonstrated by experiments on mice. PCB is much harder to break down than DDT and there is every reason to suppose that it is much more difficult to get it out of the system. The substance has also been detected in the air over London and Hamburg and also in seals caught off Scotland. It can therefore be presumed to be widespread throughout the world.

LOAVES AND FISHES

The famine which now threatens parts of India has tended to focus the attention of the developed countries on that sub-continent's chronic inability to feed its teeming people, but a warning note came last week from another less publicized area. Dr B. R. Sen the Indian Director General of the UN Food and Agriculture Organization was addressing a regional conference at Punta del Este, Uruguay. He lambasted the governments of Latin America for their unwillingness to face what could be "a very serious situation indeed". It would take, he said, an increase in food production of four per cent a year to stem "social and political unrest which still prevails", or even to prevent it from worsening.

Dr Sen's warning comes none too soon. Malnutrition if not actual hunger is widespread in Latin America, where per-capita food production has dropped by four per cent in the past six years. At the same time the population is expected to double itself (to 422 million) by 1985. Dr Sen believes the four-per-cent rise to be technically feasible, if an all-out effort is made now.

Apart from the struggle to increase food supplies to keep pace with population however, efforts are also being made to overcome traditional prejudices against various foods which may be plentiful though neglected.

In the waters of Lake Victoria, for instance,—they cover an area about the size of Ireland—there are vast shoals of tilapia, a firm white fish, weighing about 8 oz and very tasty. European firms have already asked the Tanzanian government about the possibilities of sending frozen fillets to Europe but the local people are by no means as keen to eat this sort of fare.

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