INSIGHT

Water risk from 40 poison tips

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How unsuspected poisons in a Welsh stream have alerted the Government to a national hazard

IN the decorous Palm Court surroundings of the Torquay annual conference of the Institute of Public Cleansing next week, Mr Graham Page, the Minister for Local Government, plans what amounts to an official doomwatch announcement. He will announce to the gathering of local government officials a nationwide inquiry into dangerous poisons leaking from industrial waste dumps into rivers and streams.

For ten years these local government officials have been among those most involved in clearing up the mess caused by the virtually uncontrolled dumping of chemical waste throughout Britain. On Tuesday, June 12, Mr Page will tell them that the Government has decided to spend £1.5m trying to discover the identity of toxic chemicals that have been dumped on 40 tips up and down the country.

It is what Mr Page is unlikely to spell out that would cause even more of a stir. For more than a year, officials and scientists at the Department of the Environment—aided by geologists from other parts of the Civil Service—have been studying every industrial tip they can find throughout the country. So far they have had time to look at only the geology of these tips, to answer the most urgent question: can their contents seep out to cause danger to the public or to water supplies?

The study—still far from complete—has already revealed that at least 40 tips full of chemicals and waste could leak and may be leaking into the surrounding countryside. Nobody has the slightest idea what is in these tips. The £1.5m is the DoE's response to the scientists' plea that they must quickly discover what these tips contain.

The full list of 40 sites is unlikely to be published before the autumn. But we can reveal that the DoE plan major inspections of seven tips in Glamorgan, a tip at Sutton Walls (an old Roman site near Hereford) three on the Thames estuary in Essex and one at Beckworth in Surrey.

realised how dangerous to nature it could be. And PCB is unlikely to be the last chemical lying around Britain about which that frightening discovery has yet to be made.

Just how pollution at Maendy came to light illustrates the marked reluctance of several central and local government departments, over nearly five years to face the complexities of the problem.

MAENDY QUARRY, as the map on page 2 shows, lies above the tiny Upper Church village and the Cwm colliery, a few miles south of Pontypridd. Sandstone quarrying there had been abandoned for some years when in February 1966, Glamorgan County Council gave the Cardiff firm, Industrial Waste (Reclamation) Ltd, —part of the Industrial Waste Disposal (South Wales) Ltd group—permission to tip at Maendy.

The normal conditions for the time were imposed: keep the surrounds tidy; level the top when the quarry is full and plant grass. The disposal firm was also to ensure the free flow of surface water drainage and to prevent pollution.

Neither the council nor the Glamorgan River Authority—whose job was to weigh the risks to public health from the streams flowing out of Maendy—was perturbed by the geology of the quarry. Although its walls and floor are sandstone, which is impermeable, cracks in the floor led down through a coal layer into limestone, which *is* porous. Any liquids or soluble solids dumped into Maendy were thus almost certain to seep out: either down the cracks into the water table, or to the surface in spring water.

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Behind the scenes, the Government has had to move even faster. DoE officials have decided that one of the Glamorgan tips—the worst tip they know anywhere—already represents a potential public hazard. It is a quarry called Maendy, on a hillside above the South Wales mining valley of Taff Vale.

Stinking pools

Maendy quarry is now known to contain at least 31 different contaminants—of which five have been rated as very toxic, nine as toxic and three as mildly toxic. The most disquieing discovery has been that Maendy also contains a chemical that, like DDT, can be transmitted through the animal food chain so as to build up in the body fat until it reaches damaging, even potentially lethal, concentrations. The chemical is the family of polychlorinated biphenyls, PCB. Tests suggest that for the last three years the PCB dumped in Maendy has been leaking in increasing quantities down the hillside.

Who is morally or legally responsible, how bad the public health hazard is, and what can be done, have all still to be resolved. But the Department of the Environment has decided not to wait. It has already, in some secrecy, embarked on a £20,000 programme to investigate what lies beneath the stinking, bubbling pools that now mark the surface of Maendy quarry.

Officials are already bracing themselves at the prospect that public money may have to be spent to seal off Maendy. The technical opinion is that it may be impossible simply to drain off the chemicals. The quarry itself may therefore have to be encased in steel plates. One estimate, not from the Department of the Environment, is that this would cost about £1.5 million —presumably tax money.

The PCB came from the Newport plant of the international chemical manufacturing giant, Monsanto Chemicals Ltd. Other toxic chemicals in Maendy came from BP. Both firms used as their waste-disposal agents a company, Industrial Waste Disposal (South Wales) Ltd, which is now part of the Redland-Purle group.

THE IMPORTANCE of Maendy is, first, that in the eyes of the local authorities nobody did anything illegal. Until just a year ago, British law on industrial waste disposal was chaotic. The operations at Maendy were perfectly legal. The situation may thus have been repeated at any of the 40 quarries already known—or at the unknown number yet to be discovered.

The other significant point about Maendy is that PCB was dumped there before the world fully

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Quarries

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Maendy lies among hill farms. It was six of these farmers—particularly the three with land nearest to the quarry—Bill Maidment, Peter Jenkins and Wynne Bryant—who complained, to the local rural council, to the urban council at Pontypridd, to the county council and to the River Authority. They told of an acrid smell, and of discoloured foaming water in the streams from Maendy. The River Authority told Bryant: "Leave it for six months and see if it will clear."

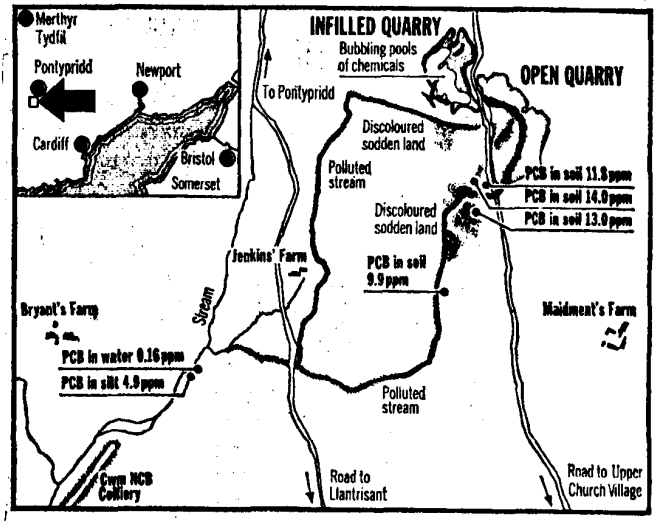
No restrictions had been placed on what was to be dumped. Apart from any other consideration, there was then no law requiring disposal companies to reveal what they were dumping.

So when, towards the end of 1968, the first complaints of pollution emanating from Maendy reached the local councils, nobody except the dumpers—who by this time had been taken over by the biggest firm in the business and were now called Purle Waste Disposal (South Wales) Ltd—could have had the faintest idea what might be causing the pollution.

The councils and the River Authority met, in January 1969, the group disposal manager of Purle, Mr F. J. A. Shults. According to the county council, Mr Shults "wanted to sort it all out." How he might do this was left to him and the River Authority.

The River Authority now admit that the farmers' complaints "had relevance to our functions." They had tested the streams and were "unhappy" with the pollution they found. They plead section 12 of the Rivers (Prevention of Pollution) Act 1961 as a reason for not revealing what that pollution was. The River Authority did not even tell the aggrieved farmers what they found. The authority had no legal responsibility to do so, the officials have since told us—adding that, anyway, the farmers did not ask.

The farmers, however, were already pressing for compensation from Purle. Bill Maidment, who keeps a herd of milking cows on the slope just below Maendy (see map), recalls that it was a Sunday morning in the winter of 1969, when men from Purle arrived with a cheque for £500. Wynne Bryant, who also has milking cows, got £600 too, specifically for fencing to keep his



Maendy quarry, Glamorgan: the latest PCB pollution levels in the streams from the tip

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animals from drinking the stream water and to provide a tank for piped water instead. Both were asked to sign a form indemnifying Purle against further claims.

The local authorities seem to have regarded this as the end of the matter. The councils, the River Authority and a Purle representative met again in November, 1969, to discuss measures "to prevent further pollution of the water courses," but the River Authority has since admitted to us that it was faced at that time with a choice: insist on the removal of the source of contamination, or simply allow the streams to purify themselves. But although the county council had planning control over the tip, the River Authority did not advise it to revoke its consent. "The situation did not arise," we have been told.

Dumping continued at the quarry until the end of 1970.

AT THIS POINT a young and energetic waste disposal consultant, Douglas Gowan, enters the history of Maendy. Gowan, an ex-pollution officer with the National Farmers' Union, was now in private practice and had been hired by the solicitors for the farmers to analyse the discharge from the quarry.

In October, 1971, Gowan delivered his bombshell. Most of the waste in Maendy, he had found, came from the Newport plant, 20 miles away, of Monsanto. And Maendy, he said, had "a PCB problem."

PCB, polychlorinated biphenyls, have been used in the electrical industry since 1929 because of their outstanding properties as a cooling and heat transfer fluid. Monsanto's production in South Wales started in the early 1950s.

PCB has been known to be dangerous in high concentrations since 1942, when an American public health report detailed how workers in a PCB plant developed pus-filled pimples and discoloured skin.

But in 1964 a Swedish scientist looking for insecticides, mainly DDT, in an eagle which had died mysteriously, found an unidentified substance with one property almost indistinguishable from that of DDT: once in the body this chemical did not break down, but accumulated in body fat. After two years' work, he finally identified it as PCB. It was the first indication that PCB lodged in the natural environment as a result of industrial effluent.

In the summer of 1968, the frightening persistence and toxicity of PCB was demonstrated in humans. More than 10,000 Japanese suddenly suffered from acne, loss of hair, vomiting, asthma-like breathing: 22 people died; four babies were stillborn. The disease was traced to PCB, which had leaked into rice-oil used for cooking.

Europe has had no such human disaster. But after the deaths of 12,000 seabirds, mostly guillemots, in the Irish Sea in the autumn of 1969, scientists found unusually high concentrations of PCB in the livers of most of the birds.

The American Environmental Protection Agency has now laid down guidelines. Unfiltered water should contain no more than two parts per billion (English) of PCB. Residues in general body tissue should not exceed 50ppb.

With the evidence of alarm among environmentalists, Monsanto had to act. In 1971 the firm placed a voluntary ban on sales of PCB for use in any except "closed systems"—such as transformers. It also ordered that PCB-contaminated waste must be burnt to destroy the PCB. But between 1966-70 6,000 tons of Monsanto waste a year were dumped at Maendy, and each year 120 tons of that were contaminated with PCB. Now the PCB is known to be leaking. Much of the Maendy controversy over the year has centred on the question: how much is leaking?

WHEN POLLUTION of the streams around Maendy "came to a head again," as Glamorgan County Council put it, in December 1971, the council pressed Purle to "give assurances" about the future. (Purle was then actually applying, in vain, for permission to dump in the empty Maendy quarry over the road from the full one.) Purle told the baffled council it did not know what had been dumped in Maendy. And the River Authority, still pleading the 1961 Act, would not tell the council or the complaining farmers of its findings.

Into this extraordinary state of affairs, the Welsh Office entered in March last year — called in, it says, "in particular because analysis of water samples by the Public Health Laboratories and the Glamorgan River Authority had not shown the "vast amounts" of toxic materials reported to them by the farmers' consultant (Gowan)." Because while Gowan was regularly finding around 20 parts per billion of PCB in the Maendy streams—with a massive 15 parts per *million* in one heavy storm —Monsanto had found PCB untraceable in 1969. Last year with new techniques Monsanto found 90,000 parts per billion—more than Gowan's lower figure.

Since last April, four scientific departments of central government have been directly involved with Maendy: the Directorate-General of Water Engineering; the Department of the Government Chemist; the Department of the Environment's chemical inspectorate; and the Water Pollution Research Laboratory. Yet so discreetly has this been done that even on March 1 this year Mr Eldon Griffiths, one of the junior ministers at the Department of the Environment, told the House of Commons that his department was carrying out no research into the toxic effect of PCB—which conveniently sidestepped the question that was concerning his department: Maendy.

And the Welsh Office—under great local pressure, as one source put it—has been the most concerned of all to allay disquiet. When last December a recognised world authority on PCB, Dr Nicholas Platonow of Guelph University, Ontario, met top Welsh Office officials in Cardiff to try to persuade them that the PCB flow from Maendy was potentially bad enough to cause death, one civil servant replied: "Dr Platonow, you have a Doomwatch mentality."

The conversion of the Department of the Environment to the view that Maendy is a public hazard has come about for two reasons. The Ministry's chemical inspectorate has been stunned at the prospects revealed by other tips throughout the country. And after discreet checking with ICI chemists at Brixham—who have been analysing Gowan's samples —DoE officials now accept that, although they give a higher PCB content than other samples, the analytical techniques and results must be regarded as valid.

A week ago, Gowan returned to Britain with results obtained in America and Canada by Dr Platonow and others. They showed that in the land around Maendy PCB has now accumulated to 13-14ppm, *seven million times the US safety figure.* Our map shows the sampling points. "This level of contamination," says Gowan, "is beyond question hazardous." The Ministry of Agriculture now agrees. Last Friday, officials there concluded that—just on the basis of the level of contaminants other than PCB—one of the farmers should not sell the milk his cows produce. The farmer, Bill Maidment, has already been told by a valuer that, as agricultural land, his farm is now useless. Maidment rents his land from Glamorgan County Council: the pollution has all but destroyed his livelihood. The council has now given him notice to quit for non-payment of rent.

Redland Purle says it cannot discuss any possible pollution because the farmers are making threatening noises about civil actions. But Richard Hawkins, the company secretary, told us that his firm considers there has been no damage to animals or farm property. He has, he said, investigated the alleged pollution from Maendy in collaboration with the local authorities and: no legal proceedings have ever been issued against it for polluting the streams; there have been no objections from the planning authority; the company has not had sight of any document alleging damage or item of pollution; and the company has carried out its own independent tests and has been advised there is no connection with any alleged damage to animals from waters coming from the quarry.