

# The Flixborough Disaster

The Lessons for  
the British  
Labour Movement

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### *Introduction*

The chemical works of Nypro (U.K.) Ltd. at Flixborough near Scunthorpe blew up on the evening of Saturday June 1st. Experts likened the blast to an atomic explosion – windows were shattered in Scunthorpe High Street 4 miles away and large pieces of the plant came to rest in ironstone workings 4½ miles away. Before the explosion people in the Scunthorpe area had hardly noticed Nypro. The company had projected what journalists would call a “low profile”. The plant was relatively isolated behind the Normanby Park Steelworks on the flood plain of the River Trent sheltered by the escarpment from which Scunthorpe had drawn the iron ore to build its industrial base. The plant was off bus routes, distinctive only by the occasional peculiar smells wafted to the villages around, and its rather picturesque nightly illuminations. After the blast many people said that it had always “been on the cards” – they talked of regular fire-calls, of the frequent explosions – but this was hindsight. On the afternoon of Saturday June 1st at the Appleby-Frodingham Steelworks Gala when the crowds saw the plume of smoke rising from the plant they immediately thought that there had been an explosion at the British Oxygen plant a few hundreds yards from the town’s tower block flats, or at the coke ovens or furnaces on the Normanby Park Steelworks. When the fact started to register that it was indeed Nypro which had blown up people began to ask why the “fertiliser” plant had exploded. Workers locally and the different sections of the labour movement were stunned; some brutal facts about the new petrochemical development on Humberside had started to appear and they were not at all sure how to respond. The brutal facts which led to the death of 28 workers on June 1st, and the devastation of an extensive area of South Humberside need the closest analysis not only by the workers of Humberside but by workers throughout the British economy. Nypro has posed fundamental questions and has addressed them to the whole of the trade union and labour movement.

### *The “Elegant” Plant and its owners*

Chemicals have been produced at Flixborough since 1937. A succession of companies produced fertilisers by processing coke-oven gas from the steel industry and sold ammonium sulphate – amongst them Norfolk Farmers Ltd and Nitrogen Fertilisers Ltd. (Fisons). Many people thought that this fertiliser process was still the major one on the site. In fact in 1964 the Nypro company was established as a joint venture between Dutch State Mines and Fisons on a 76%:24% basis.<sup>1</sup> The plant continued to produce ammonium sulphate for Fisons but also caprolactam a raw material for nylon in the ratio 4.5 tons ammonium sulphate to 1 ton of caprolactam. In

1969 Nypro announced an expansion programme raising caprolactam capacity from 25,000 tonnes p.a. to 75,000 tonnes p.a. The new capacity was based on the H.P.O. (hydroxylamine phosphate oxime) process of D.S.M. which reduced significantly the proportion of ammonium sulphate produced. Fisons continued to receive all the ammonium sulphate from Nypro (at design capacity this would have been 190,000 tonnes p.a. but with recent diminished production its take has been somewhere around 120,000 tonnes p.a.<sup>2</sup>) but the company lost interest in the expansion programme and D.S.M. found a partner in its U.K. equivalent the National Coal Board. The firm was then reconstituted in 1972 on a 55% D.S.M. 45% N.C.B. basis. The link made sense to the N.C.B. as an extension of their interests in the processing of coal by-products — “feedstock” (raw materials) for Nypro in the form of cyclohexane was supplied from Staveley Chemicals Ltd. who use benzole from N.C.B. and B.S.C. coking plants. The new section of the plant was opened in June 1973. A further expansion of the caprolactam capacity of the plant to 150,000 tonnes p.a. was planned before the explosion which would have also included a unit to produce cyclohexane from benzene. The Nypro plant was thus not developed on a totally “green field” site. New processes were merged with older sections to produce what has been described as an “elegant” chemical complex.

The plant, as many people were to discover after the explosion, produced caprolactam, the raw material for Nylon.6. It is centrally important to realise that the advanced technology developed at Nypro was not developed in an economic vacuum. It was developed as part of the worldwide expansion of a large multinational company Dutch State Mines and it was developed in the midst of the fierce competition between large corporations in the British artificial fibre market. D.S.M. is a multinational company ranked 99th in the *Fortune* list of the top 300 industrials outside the U.S. Its turnover last year was £100m and it employs directly over 30,000 employees worldwide.<sup>3</sup> It is the third largest chemical firm in terms of investment in Holland<sup>4</sup> and in 1973 its group sales rose by 36%.<sup>5</sup> Although its chairman Dr. Bogers denies that D.S.M. is a true multinational<sup>6</sup> it has in fact been rapidly expanding its overseas interests in recent years. It is significant for Nypro that part of D.S.M.'s impressive performance in 1973 was due to “consolidation of undertakings in which a holding of 50% or more had been acquired”.<sup>7</sup> D.S.M. closed its last coalmine in 1973 and has now switched its interests to chemicals. It has a considerable share in the exploitation of the Dutch natural gas wells and has a right to participate in the exploitation of any oil eventually found under the Dutch continental shelf. D.S.M.'s main products are raw materials for nylons and plastics, artificial fertilisers, rubbers, salt, various gases and prefabricated units for the building industry. The group also has a share in the top secret project for producing enriched uranium being developed by Britain, West Germany and Holland with its centre in the east of the Netherlands. It is also busy building up interests in transport, clothing and car industries.<sup>8</sup> In Britain the company controls Shellstar fertiliser plants and of course its 55% share in Nypro. The production of caprolactam is in fact a very important part of D.S.M.'s activities. It has 16% of the world's caprolactam capacity and has interests in the U.S., Mexico, Columbia and Holland. Before the disaster it was hoping to expand its worldwide capacity to 576,500 tonnes annually or about 20% of world production by 1976.<sup>9</sup> World consumption of artificial fibres has expanded rapidly since the war and forecasts suggest a doubling in consumption by the turn

of the century.<sup>10</sup> Demand for caprolactam has also increased and it has become an expensive product – before the explosion the European spot price was about 2,300-2,700 dollars per tonne with a “lunatic fringe” price of up to 3,000 dollars per tonne.<sup>11</sup> Contract prices in the U.K. before June 1st were probably around £300-£400 per tonne, and Nypro had been refused a massive 48.4% increase by the Price Commission earlier this year.<sup>12</sup> D.S.M. was therefore very keen to accelerate its expansion programme in Holland and at Nypro, and to run the Nypro plant nearer its full capacity.

In the U.K. the production of caprolactam at Nypro played a much more important part in the Nylon market than most people in South Humberside realised. Indeed it was the “linchpin of that market: it was designed to grow with demand”.<sup>13</sup> Nypro was also the base on which Courtaulds were building their campaign to break back into the British nylon market. In 1964 Courtaulds had exchanged its interests in British Nylon Spinners for I.C.I.’s 38% stake in Courtaulds and had received an extra £10m from the deal. Courtaulds were anxious that I.C.I. and De Pont would now monopolise the lucrative British nylon market with their Nylon 66 production, they therefore invested the profit from the deal in plant to manufacture Nylon 6 filament. To do this they needed D.S.M.’s caprolactam, which thanks to the inventiveness of D.S.M.’s researchers had managed to by-pass the patented processes held by other firms.<sup>14</sup> The development of the Nypro plant as a U.K. producer of caprolactam was welcomed by sections of the chemical industry “who saw in it the opportunity to break I.C.I.’s grip on the nylon market.”<sup>15</sup> Courtaulds’ plants at Aintree and Spondon were totally dependant on Nypro, and they were looking forward to a 60% expansion programme based on the increase in Nypro’s capacity. The other major customer for Nypro’s caprolactam was British Enkalon a subsidiary of the Dutch Akzo company with whom D.S.M. have joint projects in Holland. British Enkalon obviously found its relationship with Nypro a satisfactory one – last year its profit was £3,720,000 which compares with a 1972 total of £520,000.<sup>16</sup> Estimates<sup>17</sup> suggest that Nypro was sending up to 35,000 tonnes a year to Courtaulds’s and 25,000 tonnes a year to British Enkalon, who together had managed to break back to 40-45% of the U.K. nylon market, the rest of course was still in the hands of I.C.I. and Du Pont.<sup>18</sup> Nylon 6 (sold under the label of Celon and Enkalon) has managed to capture this large percentage of the market despite the fact that it is recognised as slightly inferior to Nylon 66 for use in clothing. But it has a great advantage in being a very versatile product – apart from clothing, hosiery, and carpets it found its way into aircraft components, car tyres, seat belts and conveyor belts. In fact it was estimated after the explosion that about 40,000 jobs were affected by the loss of production from Nypro.

Nypro was a good example of the type of plant the labour movement has become more familiar with in recent years. It was developed by a large multi-national company pushing overseas to capture new markets. D.S.M. saw their relentless growth as “necessary for maintaining or achieving a reasonable return, or seen from a different angle, for limiting the inflationary price rises inherent in stagnation”.<sup>19</sup> Of course in the case of D.S.M. this growth was in one of the lead sectors of the world economy, petro-chemicals – plants like Nypro are springing up all over the world.<sup>20</sup> They are developed in response to market pressures not rational planning and “chemical engineers are under constant economic pressure to raise temperatures and pres-

tures and to make more energetic reactions".<sup>21</sup> These same pressures produce intense concentration of production and the inevitable growth of huge chemical complexes. Nypro though quite small by international standards supplied the whole of the caprolactam production of the U.K. and it was to double its capacity in the next few years. This acceptance of arguments for "economies of scale" has meant that we are now faced with huge chemical plants and mammoth oil and chemical tankers. The chemical industry itself has recently started to question these trends not because of safety or environmental risks but because of the threat of excess capacity. Nypro was a small plant, many larger and more dangerous plants exist. Workers might legitimately ask whether economic pressures are producing safe chemical plants as well as "elephant" ones.

### *The Chemical Industry and Safety*

In the aftermath of the Flixborough explosion many commentators were quick to point out that the chemical industry was a relatively "safe" industry. One of them claimed that "the fatal accident rate in the industry is only marginally worse than in your own home".<sup>22</sup> Certainly the statistics<sup>23</sup> show that between 1963-72 the average number of fatalities per year in chemicals was 10.7 per 100,000 workers and ten major industries had worse records.<sup>24</sup> The Chemical Industries Association pointed out that "there had been only 27 fatalities in the past three years excluding the Flixborough blast".<sup>25</sup> In the Scunthorpe area two major industrial categories "Coke Ovens and Manufactured Fuel" and "Iron and Steel" both had worse national figures than chemicals.<sup>26</sup> Spokesmen for the industry also made it clear that they saw the Flixborough explosion as a unique, freak blast. Leslie Grainger, Nypro chairman at the press conference a few hours after the explosion felt confident that the events of June 1st would later be found to be "unique in the history of the chemical industry". Of course these spokesmen have a vested interest in projecting chemicals as a safe industry, and unfortunately their views do not coincide with those of other people who have felt for some time that the chemical industry had been extremely lucky in avoiding major catastrophies. On June 2nd Professor C.H. Bamford, professor of industrial chemistry at Liverpool University said that such an accident was "inevitable" sooner or later.<sup>27</sup> Brian Harvey, Chief Inspector of Factories was quoted as saying "this is one of the dangers we now face when we are at the frontiers of science." He recalled a warning in his 1972 Annual Report that "we are faced increasingly with the risk of failures which could result in multiple deaths and injuries of near-disaster proportions" and he added that "that unfortunately is now an understatement."<sup>28</sup> In fact the industry itself has been worrying about explosions in other countries. There were 14 major explosions in the Japanese chemical industry last year, the worst resulting in a 73 hour fire. There have been explosions at Wacker Chemie in West Germany and at Ciba Geigy in Switzerland. Here in Britain there was a hydrocarbon fire at B.P.'s Baglan Bay complex in South Wales in February 1973 which cost £625,000 in damage, and in February 1974 a second fire cost £150,000. More than 25 major fires have occurred at chemical and petroleum plants in Britain in the past six years.<sup>29</sup> In 1970 there was a cyclohexane explosion at I.C.I.'s plant at Wilton on Teesside which one of the investigators suggested could have resulted in a "chain reaction explosion involving the whole chemical complex, and creating devastation and fires on a scale

far larger than could be coped with by local authorities".<sup>30</sup> The explosion at Nypro was almost certainly triggered by the ignition of a large cloud of cyclohexane and there have been indications for some years that this kind of explosion was a threat to plants like Nypro. In August 1967 at an oil refinery at Lake Charles, Illinois a massive leak of isobutane exploded killing seven workmen and setting off secondary explosions and fires which went on burning for a fortnight. The total damage was 35m dollars. Similar cloud explosions have been reported from Rotterdam and Port Hudson, Louisiana. In February 1973 a huge fire and explosion at a liquefied natural gas storage tank in New York killed 40 people.<sup>31</sup> The most potent threat perhaps is in estuary areas where tankers, petro-chemical plants and densely populated urban areas are in close proximity to each other. Rotterdam is just such an area and mass evacuation plans are in constant readiness there – the Humberside region of course is another one. Cloud explosions are still possible because authorities on chemical plant safety and the designers of plants have had "a touching faith in the cleansing and defusing properties of fresh air"<sup>32</sup> and have allowed leaks to escape into the air. After Flixborough this assumption can be seen to be dangerously wrong.

It would perhaps be too crude to suggest that the Flixborough plant blew up because it was the product of intense commercial pressures forcing processes to the "frontiers of science", but one must consider this as at least a contributory factor. The D.S.M. process used at Nypro which conveniently bypassed the ICI/DuPont patents was generally regarded as more hazardous than its competitors. Since 1964 the production of caprolactam had been streamlined and some steps cut out of the process. The new processes were based around cyclohexane, a colourless, petrol-like liquid with a flashpoint of minus 18 degrees C. Its vapour disperses in a fast moving cloud which can be ignited virtually instantaneously by a spark of any description. It is also highly toxic and its vapour causes instant asphyxiation if ingested. About 1000 tonnes of cyclohexane was stored at Nypro, together with large quantities of ammonia which is poisonous and which also was stored under great pressure. Cyclohexanone the key chemical for the production of caprolactam was manufactured by reacting cyclohexane and air at very high pressure and temperature. The N.C.B., part-owner of the plant described the D.S.M. refinements at Nypro "as a particularly hazardous process".<sup>33</sup> The Flixborough processes were D.S.M.'s most advanced techniques and were also being used according to reports by Nypro in Georgia, U.S.A., and in Japan.

"The processes were very expensive to develop and DSM and the NCB had ploughed a great deal of investment into Nypro without significant returns – in 1971 although sales totalled £6,107,674 the firm returned a loss of £40,406, in 1972 sales totalled £6,689,276 but the loss increased to £1,111,734. The N.C.B. last year lost £482,000 on its stake compared with a small profit of £50,000 the year before. This was due of course to the building of new capacity, but it made the owners even more anxious to increase production to take advantage of the expanding world caprolactam market. Nypro had failed in its bid to increase the price of caprolactam and DSM were understandably very concerned about the plant's performance following the commissioning of the HPO process in 1973. Previous to June 1st there were "rumours for some time that Nypro had been having technical problems with the plant. The plant was only producing some 47,000 tonnes

of caprolactam out of a total rated capacity of 75,000 tonnes or about 63%”<sup>34</sup> — these rumours are officially denied, but the pressures were obviously there, low capacity or not, to keep output at the highest possible level. This commercial background to the explosion will almost certainly be lost sight of in the official enquiries — it is up to the labour movement to raise this central issue of whether complex and hazardous technologies like those at Nypro should be governed by the intense competition in the international chemical industry. This is not an academic question for both the firms who owned Nypro are nationalised concerns and can be made accountable for their actions to the governments if not the workers of Holland and Britain.

Nypro spokesman have emphasised that the plant had a good safety record. Huub Beckers the general works manager at Flixborough claimed that it “was amongst the safest in Britain”.<sup>35</sup> But there are certain questions about the safety of the plant which investigations will no doubt throw further light on. First there is the question of whether the plant was adequately designed to resist the force of explosions. The design suggested that a blast on the scale of the one of June 1st was totally ruled out. An office block housing administrative and management personnel was built very close to the process part of the complex and was totally demolished. On a normal weekday the offices would have been occupied and it is very likely that many more people would have been killed. Moreover a “disaster plan” which was under discussion at the time of the explosion would, according to Ruud Selman, the plant’s executive director, have involved the use of this same office block as the rallying point for employees. The emergency plan operating at the time of the blast specified the control room as one of the rallying points — the same control room in which most of the workers died. In view of the evidence available about explosions in other plants it would be fair to ask why these two buildings were not better sited or protected.

Secondly reports suggest that maintenance and repair work on the plant was difficult. This was the result of the piecemeal development of the site and the fact that very many different levels were involved. Different sections of the plant were situated closer together than in many plants of this type. Problems of maintenance and repair techniques will be a central issue for the Public Enquiry, for a bridging pipe installed during repair work is thought to have fractured, and allowed cyclohexane to escape. The installation of the pipe was done under difficult conditions and in fact it had to be rewelded because it leaked when first installed. There are doubts about whether the pipe was adequately tested on installation and during its three months in operation. There had also been engineering difficulties during the construction of the new processes and rumours suggest that there were major disagreements between the construction firm Sim-Chem and Nypro, rumours which, have been denied by Sim-Chem.<sup>36</sup> Contract maintenance workers were extensively employed at Nypro and their safety standards had been questioned by Nypro workers who were keen to replace them with full-time Nypro gangs.

Thirdly there are the many reports of fires and small explosions on Nypro before June 1st. Many of these reports can perhaps be discounted as hindsight and fire-calls can simply be an indication of a very sensitive alarm system used by workers to summon help at the sign of any potential fire hazard. But having said this nagging doubts remain about the “small” fires admitted to have taken place at Nypro. Indeed is it possible to define a “small” fire in a plant containing the kinds of



process which Nypro had?

Thus the comforting statistics on the safety record of the chemical industry should perhaps be examined with a little scepticism after Flixborough. Perhaps the most difficult fact for the industry to digest is that the explosion was probably due to the failure of a part of the plant engaged in a process which is quite common in other plants. The repair techniques used on this part of Nypro are probably standard ones common throughout the chemical industry. Even before the Public Enquiry “chairmen of leading oil and chemical companies were getting circular letters from the Chief Inspector of Factories advising them to be ultra-careful about their repair and maintenance techniques. Flixborough has shown that the chemical industry’s second line of defence against breaks and leaks cannot be relied on any longer”.<sup>37</sup> The inescapable conclusion is that the explosion at Nypro could be repeated in many other chemical plants. “The Nylon 6 process of Nypro, although always potentially hazardous, is by no means exceptional by present day standards in the chemical and petroleum industries”.<sup>38</sup> Nypro has put a huge question mark against the term “safe, chemical plant”.

### *The Siting of Chemical Plants*

It is significant that press reports after the explosion concentrated on the extensive damage to the villages in the surrounding area. This perhaps reflects the values which seem to dominate discussions on industrial safety and hazards. The *Economist* put it most starkly “When all is said and done both the Government and industry are prepared for a certain attrition rate in high risk plants and what must have shaken them more than the Flixborough plant’s reduction to a scrapyards is the extent of the damage beyond the factory fence. Industry’s in-house disasters are bad enough but when they reduce a village to rubble, put dozens of stitches in toddlers’ faces and frighten out of their wits people living as far away as 20 miles, the risk assumes new dimensions”.<sup>39</sup> The “attrition rate” at Flixborough was 28 killed – no one was killed off the plant. Those most closely involved in the aftermath of the disaster were extremely bitter that this central fact did not receive the attention it obviously deserved. It is arrogant nonsense to suggest that the majority of people in this country share the chilling cynicism of “Government” and “industry” and see the deaths of chemical workers as an acceptable cost of advanced technology.

The explosion at Nypro had the force of an atomic explosion, and blast damage and wreckage was reported within a ten mile radius. In recent years the “environment” lobby has often been a middle class one, in general not supported in strength by the labour movement. After the Flixborough disaster the coverage which the villages around received was not unconnected to the fact that they are in the words of a *Times* reporter “very much middle management country”<sup>40</sup> and they provided the enraged, articulate spokesmen which the media welcomes. But working class families do live in the villages around Nypro and the social geography of the Scunthorpe area is not necessarily typical of other areas where potentially dangerous chemical plants exist. Many if not the majority of chemical plants are in fact near centres of population and it is important to remember that Nypro was relatively isolated from residential areas. A repeat of Nypro in another chemical plant might well result in the devastation of houses, flats, schools and hospi-

tals on a scale far beyond that of June 1st. Particular dangers exist as we have seen in estuary areas, but we should not forget the indirect dangers from the road, sea, and rail transport of noxious and toxic materials. These dangers have of course existed to some degree for many years but they have greatly intensified over recent years.

Gordon Oakes an under-secretary at the Department of the Environment announced on June 2nd that his department would begin a full investigation into the siting of chemical plants near centres of population. Nypro and its planning history suggest that such an investigation is long overdue. The former chairman of the Brigg R.D.C. Planning Committee, who were responsible for planning during the plant's development, was quoted as saying "that he and his council had been 'blindfolded' at the time planning permission was given. 'We didn't realise that what was a fertiliser factory would turn out to be a potential bomb'".<sup>41</sup> In fact it might well be that Nypro were more forthcoming than many other chemical firms, for they submitted plans in 1964, 1965 and at various times up to 1971, and as the new Glandford authority's planning officer Noel Ingham suggests "It may well be that Nypro could have manufactured Caprolactam from the Nitrogen Fertiliser's old site without seeking planning consent, being a change of use within the same use class. On reflection it might not have been even a change of use".<sup>42</sup> Thus even when a firm goes beyond its legal obligations the local authority still feel "blindfolded". But important as it is to improve the information available to local authorities when taking planning decisions one has to realise that siting and planning decisions are the result of a whole range of economic and political pressures. Petro-chemical complexes have been attracted to the growth areas of Britain, as Canvey Island reminds us, but they have also been sited in recent years in areas of economic and industrial decline. Humberside has welcomed petro-chemical and chemical plants on the north bank around Hull and on the south bank between Grimsby and Immingham. These plants have offered the only dynamic elements in a declining economy.<sup>43</sup> The same situation has developed on Teesside. It is in these kinds of areas that the "environmental" arguments are often outweighed by "economic development" and "employment" arguments. The irony is of course that although chemicals provide growth sectors for declining areas they are highly capital intensive and automated and bring very few jobs with them. It may well be that this contradiction will result in workers in development areas reacting more forcibly against plants which threaten the safety of whole communities without adding to employment opportunities. Traditionally workers have been willing to accept a certain social cost in terms of industrial injuries in order to acquire guaranteed employment. In Scunthorpe it was significant that most steelworkers responded to the explosion in a very fatalistic way. After all steelworks are very dangerous places to work in — in the ten days following the 1st of June there were a number of very serious injuries and one death reported on the local steel works. It is very easy for middle-class professional workers to demand that a plant is moved to "someone else's doorstep", quite another thing if this means you are faced with unemployment.

If the siting of chemical plants depends on responses to regional economic development pressures it is also affected by the pressures imposed by multi-national companies. Pressure on these companies by their home governments send them

abroad looking for more amenable hosts. This was made brutally clear by W.A. van Dorp chairman of the Dutch chemical industry's association in his annual report:

“The association pointed out difficulties with chemical investment in the Netherlands. Some plans to erect or expand chemical facilities met with ‘advance opposition’ last year whereby authorities were no longer in all cases providing open-door treatment. This meant that the realisation of investment projects was proving laborious and time consuming.

“This situation led to some companies preferring other countries for the setting up of capacities . . . Particularly in the chemical industry as a highly internationally-oriented sector there should be no fond illusion that the industry would keep up its domestic investments if this was made too difficult or too dear”.<sup>44</sup>

The importance of this for plants based on Dutch capital like Nypro are obvious and seem to be somewhat at odds with the statement by Dr. Bogers, chairman of DSM earlier this year that “The chemical industry was also faced with the task of contributing to the battle against pollution in this densely populated country. Optimism siting could therefore no longer be chosen primarily on the basis of technical-economic factors but rather by consideration of environmental effects”.<sup>45</sup> Demands for the control of the siting of chemical plants must clearly involve an offensive against this unaccountable power of international corporations. Control of multinationals after Flixborough can be seen to be far from an academic question. In fact it is an urgent necessity if we are to safeguard the lives of those who work in chemical plants and those who live around them.

Questions of “siting” of chemical plants in fact involve a fundamental analysis by the labour movement of the terms under which workers, whether directly employed on a plant or living nearby, can accept the technologies of advanced capitalism. In the 19th century a “laissez-faire” approach to industrial development was challenged by an alliance of workers, and humanitarian liberals drawing on the collective strength of trade unions and workers’ political organisations to wrest from the owners of industry gains on “safety” and “environment”. Miners and textile workers first put men into Parliament to end the slaughter of workers by the new technologies of factory capitalism. Out of these struggles emerged the Factory Acts and the protection (albeit limited) which workers received on health and safety matters. Today the problems often seem more complex, the technologies often seem beyond the control of workers but the same challenge faces the labour movement. Certainly new planning controls are needed but they are not achieved in a political vacuum. Many of the villagers interviewed after the Flixborough explosion would be the last people to vote for candidates who would be willing to take the political action necessary either to control multinational companies, or for that matter speculative builders who build near chemical plants. The harsh political lessons of Flixborough should not be buried under narrow “pressure group” campaigns. Nor should workers be diverted by the good old fashioned mystification peddled by Sir Derek Ezra at his press conference on June 2nd when he “after expressing his deep regrets said that the disaster would greatly affect the balance of payments situation”<sup>46</sup> or for that matter by one of the voices of the chemical industry, *Chemical Age*, which said

“Unfortunately the consequences when a plant oxidising cyclohexane goes up are on a parallel with a jet falling out of the sky.

“So far no one has suggested that air travel should be banned. And before irrational, emotional decisions are taken that could affect the whole future of the chemical industry, the man in the street should realise that the products of the oil and chemical industry are to a large extent responsible for his high standard of living”.<sup>47</sup>

The export price of coal, the price of cotton shirts and the increase in the standard of living in the 19th century did not divert workers then. It would be tragic if the “balance of payments” and the availability of tights and plastic buckets should be allowed to divert chemical workers now. Threats to safety and to the environment will in the end fall hardest on working class families. In the words of John Ellis the local Brigg and Scunthorpe MP workers have already suffered too much “on the altars of wealth and so-called technical achievement”.<sup>48</sup> It would be ironic if workers just emerging from the rows of soot-blackened terraces thrown up by factory capitalism should find themselves even more threatened in their council home or flat by the new plants and factories from which they gain their living.

### *Pressures on the Politicians*

The Nypro explosion clearly shocked the Labour government. In quick succession Harold Walker, Michael Foot and Gerald Kaufman visited the area. Michael Foot in response to a question from the Brigg and Scunthorpe Labour MP John Ellis promised a full public enquiry on the disaster. On his visit to Scunthorpe on Friday 7th June Foot repeated this and emphasised that he would not be party to any attempt to cover up any of the facts surrounding the explosion. But already on Tuesday the *Guardian* had sounded a warning that there were signs of “pressure behind the scenes against a fully public expert tribunal”<sup>49</sup> and in the end the minister announced, apart from the public committee of enquiry, an internal expert committee reporting to the proposed Health and Safety Commission — hardly the full scale public scrutiny of the chemical industry that Nypro stewards had put forward as a demand to him in Scunthorpe. “Pressure” certainly affects these kinds of ministerial decisions and it is to be expected, for as we have seen there were very powerful commercial interests involved in the Nypro plant. These commercial interests are likely to be cautious about discussing valuable patented processes in public. Demands for the full scale enquiry of the whole chemical industry raised by the unions at Nypro run counter to the interests of the Factory Inspectorate. The 40 Chemical Inspectors simply could not cope with the extra workload involved in such an enquiry — in fact many people would suggest that they cannot cope with their present huge tasks, but like all civil servants they are unlikely to admit to their own inadequacy.

But the whole question of political pressures goes much deeper than this. The Labour government like its Tory predecessors is confronted with a stagnant economy starved of investment and plagued by rapid price inflation. On the horizon all the economists and politicians see their salvation in the exploitation of oil reserves in the North Sea and perhaps the Celtic Sea. The British economy will according to all the predictions be based on fossil fuels (oil and coal). But oil and coal do not merely produce the fuel and energy necessary to keep our complex society moving and

working, they also provide essential raw materials for chemical industries producing a vast range of plastics, fibres and pharmaceutical goods. We often forget just how dependant we are on the products of the chemical industry, but the Government certainly doesn't. They would not dissent from the views of M.E. Trowbridge, Director-General of the Chemical Industry Association when he claimed that "for the last 20 years the UK Chemical industry has grown more than twice as fast as the average UK manufacturing industry. In 1973 the direct output of the UK Chemical industry was close to £5,000m. The output of industries dependant on the chemical industry for raw materials or essential supplies was many times that figure". In a period when export-led growth was the aim of governments, in 1973 exports from the UK of chemicals was up 32% in value over 1972.<sup>50</sup> Throughout the developed and even the developing world the chemical industry has grown dramatically in recent years. Between 1960 and 1970 "in all areas chemical industry expansion was more rapid than that of the rest of manufacturing industry"<sup>51</sup> In the crucial field of research and development spending rose 15-20% p.a. between 1960 and 1970 in the world's pharmaceutical, plastics and fibres industries.<sup>52</sup> In the UK in 1972 the chemical industry accounted for 8.4% of total value output of UK manufacturing industry (in 1970 it was 8.0%). Chemicals had the second highest growth in gross value output (11.2%) after paper, printing, and publishing (12.2%), well ahead of the average rate for manufacturing industry as a whole (8.5%). Productivity performances would also have not gone unnoticed by governments "output per head in 1970, 1971 and 1972 was second only to that of the ultra-capital intensive and closely allied coal and petroleum products sector". In 1972 output per head was 76.3% above the overall level for UK manufacturing industry – the gap had widened from £1677 per worker in 1970 to £2229 in 1972.<sup>53</sup> Perhaps most important of all despite a fall-off of investment in 1972 chemicals still did better than anyone else and recent reports suggest an "investment boom" is imminent. Forecasts collected by the Chemical Industry Association suggest spending in 1974 of £430m rising to £520m during 1976, almost double the 1972 expenditure of £286m. Even allowing for inflation accounting these figures suggest a return to the "halcyon" days of the 60's in the industry – sweet news indeed for the politicians. Unions in the chemical industry had feared a "serious shortcoming in the operation of the chemical industry . . . Despite the dramatic change in its profitability, level of capacity operation, and therefore prospects for competitive strength and further growth, the industry has over-reacted to the last recession by cut-backs in investment spending".<sup>54</sup> But this seems to have been overcome if the industry's figures can be trusted. The main reason for this optimism in the industry according to John Hunter, economics director of the CIA is that "the size of North Sea oil reserves give cause for confidence, with the possibility that the UK chemical industry could become 'the strongest and most dynamic in Europe by the 1980's'".<sup>55</sup> Faced with facts like these any government would avoid too searching a look at safety and environmental hazards which inevitably would result in increased costs and slower plant expansion. We have already an indication in the last government's handling of Scottish oil rig construction sites that even the weak planning controls we have at present will be overridden for economic reasons. The same economic pressures will operate on the Labour Government unless the trade union and labour movement can be mobilised to demand a full examination of safety and environmental hazards in the chemical industry. The

economic stakes are certainly high ones but Nypro suggests that the costs to workers could be higher still and too high for any civilised society to bear. The union's at Nypro have already laid the foundation for such a campaign by authorising an independent enquiry into the blast which will go far beyond the narrow causes to examine the wider implications for workers in the industry. But pressure has to be built up to force the TUC to intervene and make clear to the government what the implications of Nypro really are.

Any campaign of this nature depends to a large extent on the response of the labour movement in areas where chemical plants are sited. The experience in South Humberside suggests that much work has to be done to persuade Labour local authorities and the rest of the labour movement to face squarely the issues raised by the Nypro explosion. Scunthorpe is an industrial community which has developed over the past forty years, and lacks the solidarity of working class communities forged in the struggles of the 19th and early 20th centuries. The response of workers in Scunthorpe to the Nypro disaster was very different to the response we have seen in recent years by miners to pit disasters. The tone in Scunthorpe was set by the local press which avoided any analysis of the central issues arising from the disaster. There was no attempt made to evaluate the economic and political implications nor even the industrial and safety implications; simply superficial descriptive reports spiced with self-congratulatory looks at the strength of the "community effort". An editorial headed "True Spirit" with a rather dubious choice of words suggested that a "mountain of effort has already reached a pinnacle rivalling that of Aberfan".<sup>56</sup> Councillor J. Franklin the Labour chairman of Humberside CC said predictably that the "British people have a reputation of being united at times like these".<sup>57</sup> All this was to be expected from an evening paper controlled by the *Daily Mail* group but what was rather surprising was that spokesmen for the labour movement followed this rather naive pattern also. In fact there were clearly inadequate aspects of the emergency services' response after the blast. One remembers the blocked telephone lines, roads choked with sightseers, and the classic example of a police message asking that all households within "2 or 3" miles of the plant should "open their windows" which came through on Radio Humberside a few minutes later as all households within "4 or 5 miles" of the plant should "shut their windows". It was disturbing to see the way that trade unionists in the area and the labour movement in general put their faith in the "establishment" and their response to the situation — a faith which is now no doubt a little shaken after the experiences of the weekend of June 1st and 2nd. This is all the more surprising for only a few months before the explosion the local Trades Council was asking searching questions about the emergency services available on the local steelworks, particularly the fire services. Flixborough does of course lie in an "Independent" controlled authority, Gleanford, but it is also within the new Labour controlled Humberside County Council and adjoins the Labour stronghold of Scunthorpe (with 36 Labour councillors and 4 Tories). No attempt was made by these Labour authorities to liaise with the trade unions and shop-stewards at Nypro, and in fact there was the disgraceful spectacle of the exclusion of the unions from a part in planning either appeal funds or memorial services. The only positive Labour party help came from some local officials of the party and the strenuous efforts of the T&GWU sponsored MP John Ellis who was often present at shop steward meetings at the most taxing periods after the disaster. But overall one is left with

the feeling that Labour “control” of local authorities seems to mean very little at times of crisis. Trade unionists and activists in the Labour movement should make sure that Labour controlled authorities understand the full implications of Nypro for the safety of workers.

### *Workers and Unions at Nypro*

There were 553 people employed at Nypro, the majority of whom had been organised by trade unions. The Transport and General Workers’ Union had about 200, AUEW (Engineering Section) 80 and ASTMS about 120 – some management personnel were in BACM (the Colliery Managers Association). The firms which had occupied the Nypro site before 1964 had a very poor record on trade union recognition. In the ’40’s it was quite common for the management to employ gangs of Irish migrant workers on a casual basis together with adolescent boys and women. Apparently on one occasion there was a strike by the Irish labourers and management immediately replaced them with boys at a quarter of their wage. Members of the Chemical Workers’ Union and the T&GWU did exist on the plant but they never received formal recognition by management. It was not until the plant’s expansion in the late ’60’s that the T&GWU got an organised foothold at Nypro. This pattern of poor union organisation is not untypical of this part of South Humberside. Steel which dominates the economy of the area has never been notable for strong trade union activity.<sup>58</sup> Much of the area is still rural which tends to inhibit the development of trade union attitudes. When Nypro took over, the previous outright hostility to trade unions disappeared to be replaced by a paternalist attitude which tried to make trade unions irrelevant by stressing Nypro as a “family firm”. Joint consultation rather than formal negotiating machinery was introduced and none of the committees were trade union based. The vast majority of workers became monthly paid “staff”.<sup>59</sup> The Labour relations at the plant were never very difficult but gradually the unions became more organised. ASTMS began to organise many of the technicians and chemists, and finally in 1973 the AUEW fought for and won negotiating rights for all the maintenance trades on the plant. The unions began to cooperate on bargaining and in 1973 a joint shop stewards committee started to function effectively. They ensured that joint consultation was replaced by formal negotiating committees and improvements in pay and conditions were won. Minor disputes were common though they were normally sorted out with the shop stewards but in late 1973 there was a major dispute involving ASTMS members. Faced with more determined union opposition the management gradually changed its emphasis. They had obviously decided that the unions were to be a permanent feature at Nypro and what was necessary in their view was a well organised negotiating system with which they could plan in advance future labour costs during their expansion programme. They had agreed with the unions before the explosion a trade union day release class for the shop stewards. This more progressive attitude did not prevent management attempting to play on the divisions in the different unions; and the relations of the management with BACM, whom the other unions refused to negotiate with, were at times provocative. Union demands, inevitably at this stage of organisation had tended to concentrate on wages and conditions but demands about safety were beginning to percolate into negotiations. A second safety officer had been employed a few months before the explosion but safety matters were still reserved for the joint

consultative machinery. There was no safety committee at Nypro nor were there any safety stewards. Safety matters would no doubt have become matters for negotiation for the AUEW had placed on the agenda for the next shop stewards committee the question of safety standards for contract labour on the plant.

In fact it was extremely fortunate that there was a joint shop stewards committee at Nypro for it was to be the members of the committee who were to play the central role in the immediate period after the blast. Nypro's records and management structure disappeared overnight and it was the stewards who helped to identify who was on shift on June 1st, and it was they who helped draw up the list of injured workers. The stewards literally carried a multinational company over the first 36 hours after the disaster. On Monday morning June 3rd Nypro could still not produce a full list of its employees. The shop stewards together with the district officer of the TGWU were immediately involved in emergency measures and in representing the union point of view in unprecedented circumstances of confusion and tragedy. At national level, the trade union response was uneven. ASTMS sent a national official to the scene in the first week, and the TGWU's solicitors were made available to the stewards very early in the week following the explosion. The AUEW's activity was considerably delayed, possibly because it was in the middle of a regional re-organisation. The union's national office tended to await initiatives by its District Committee; the relatively strong autonomy of the District machinery is a well-known feature of the AUEW's structure. In this case, the District Committee is composed mainly of steel-workers who were not directly involved with the blast and its implications. One of the lessons which trade unions can usefully learn from Flixborough is the need to respond quickly to industrial disasters on this scale; even the most experienced shop stewards need urgent servicing and support when overwhelmed by a crisis of this kind. In the case of Flixborough, this need was underlined by the relative inexperience of the local union machinery, and by the geographical isolation of the site.

Despite these advantages, the stewards and the local officer were quick to raise some of the central issues arising from the disaster. On Monday they issued a statement calling for a Public Enquiry, which, they stressed, should go beyond the narrow causes of the explosion into the wider implications for fellow trade unionists. The need for an independent union voice in any enquiry was re-inforced for the stewards as they were systematically by-passed by almost all the different agencies operating in the aftermath. Three enquiries were begun in the first few days — by DSM and the NCB, by the Factory Inspectorate, and by the police. Survivors, eyewitnesses, and other employees were extensively interviewed without any union representation being sought. A whole range of visitors were allowed access to the site but until Tuesday the stewards themselves were refused access by the authorities. The Factory Inspectorate team began its enquiry and issued a preliminary report by Tuesday 4th June — during this period there had been no attempt by the Inspectorate to contact any union representative at any level. Many of the stewards first heard of the preliminary report on television, the Inspectorate obviously did not feel that they could give the unions even the courtesy of an advance copy of their report. In fact it was not until the stewards visited the devastated plant on Wednesday the 5th June and asked to see the Factory Inspector that any contact was made. This kind of treatment convinced the stewards and their



official that an independent union enquiry with technical experts was necessary. The stewards were able to arrange for the visit of two leading chemical engineers Leslie Seddon of Kodak, and Victor Marshall of Bradford University on Thursday 6th June. The experts visited the plant with a trade union delegation to see the damage for themselves. During the first week too, the National Executive of the TGWU issued its own call for an independent inquiry, and by Thursday evening Jack Jones was able to announce an independent union enquiry supported by ASTMS the position of AUEW had not been made clear and in the end the enquiry proceeded in their absence.

Thus the stewards and their local official had made an important breakthrough in establishing an independent role for the trade unions in the Public Enquiry, and had also made it clear that they would not be happy with an enquiry which avoided the wider implications of the disaster. Jack Jones echoed these sentiments in a message he sent to the Union Enquiry "the union is determined to ensure the fullest possible investigation of the causes and effects of the disaster to see that justice is done to those who were employed here (or their relatives) and try to make certain that others are protected as a result of lessons learnt arising out of this terrible episode".<sup>60</sup> But this campaign was probably a minor part of the stewards' work in the first days after the explosion. They were working closely with their union's solicitors who had made themselves available very early in the week but ironically in this period perhaps the greatest cooperation came from the Nypro management. Joint teams of stewards and personnel department employees visited bereaved families and distributed payments and claim forms. Delegations went to funerals and daily meetings were held with management to check on the progress of fire and hazard control (a major part of the plant burned till Tuesday 4th June and the last fires were extinguished on Thursday 13th June). Reports were also given at these meetings on the recovery of bodies by the Mines Rescue Service (the last body was brought out on Thursday 20th June). The stewards fought throughout this period for recognition of the plight of the families of those who had been killed against the press's obsession with house damage in the surrounding villages. This obsession was best summed up perhaps by the classic headline on house values in Burton-Stather in the local evening paper only two days after 28 men had been killed which read "Drop in values is possible".<sup>61</sup> The stewards started to collect evidence on the harassment of bereaved families by the press. One reporter posed as a Nypro representative to extract intimate family details from one widow. Some bitter lessons were learnt in these first days by the stewards about the priorities of the society around them. Half demolished homes and distraught householders obviously make much better "copy" than an analysis of the death of 28 workers. By the end of the first week whilst the majority of the bodies were still on the site, claims from householders for house damage were invited from the organisers of the Disaster Fund — a Fund which many people naively thought would be going to the bereaved and injured.

The T&GWU Branch at Nypro was affiliated to the local Labour Party, and some of the stewards had become active in local Labour Party committees and they obviously looked for support from the Party and from the Labour Government. At a local level the constituency Labour Party and the M.P. John Ellis responded speedily to the crisis. The local Labour Club was used as an information centre and headquarters for the

joint shop stewards' committee from Monday 3rd June. On Wednesday evening 5th June the Executive Committee of the Constituency Labour Party issued a statement about the disaster which focussed attention on the central role of workers' representatives in the Public Enquiry.<sup>62</sup> On Monday Michael Foot had announced the Public Enquiry and it was clear that the terms of reference for the Enquiry would become the crucial issue. Harold Walker MP for nearby Doncaster and Minister at the Department of Employment with responsibility for the Health and Safety Bill, visited Scunthorpe on Sunday June 2nd and would not even commit himself to a Public Enquiry when questioned by Labour Party members. Foot agreed to visit the area on Friday 7th June and made it known unofficially that he was keen to get the views of the workers locally on the terms of reference of the Enquiry. In the event the visit was something of an anticlimax. His visit was stage-managed by his civil servants with the inevitable ritual lunch with the mayors, Lord Lieutenant etc. and a guest list which when it first appeared had no reference to the shop stewards, nor an AUEW representative. Foot did instruct his Safety Inspectorate to work more closely with the unions. He also stressed in statements his concern for the families of the dead and for the injured, and the fact that a prime reason for his visit was his scheduled meeting with the shop stewards. He was handed a list of demands from the stewards committee<sup>63</sup> and his answers simply reinforced the impression the Government has given over the past few months that it is pursuing a very cautious if not timid line on matters of industrial safety. He rejected any suggestion that the unions ought to have the right to nominate members to the Public Enquiry, or a veto power over the appointment of a chairman. He hedged over one of the most substantial demands – for a wide-ranging examination of the chemical industry – and like all other Government spokesmen pointed to their new Health and Safety Bill as the answer to many of the issues raised by Nypro.

Nypro has indeed exposed the gaps in present Safety legislation but unfortunately for the Government it has also exposed the inadequacy of the Health and Safety Bill. It is certainly true that the Bill allows the new Health and Safety Commission to schedule hazardous processes as requiring a safety licence, but there is great deal of doubt whether the Commission is likely to be able or willing for that matter to stand up to the intensive commercial pressures which we have seen operating in the chemical industry. The Commission's members will be selected by the Ministry with a third of the members nominated by each the CBI and TUC; the other third, as usual, will be those mythical "independent" members who always manage, somehow, to vote with the employers. Nypro exposed the inadequate powers and staffing of the Inspectorate. The plant was last inspected in November 1973<sup>64</sup> and even if any defects had shown then it would have been difficult for the Inspectorate to do much, for at present "it can intervene on matters such as asbestos dust or the guard on a circular saw, it cannot investigate the electronic fail-safe circuitry controlling the movement of tonnage quantities of volatile petrochemicals".<sup>65</sup> The Bill will increase the Inspectorate's powers and also their numbers but employers will have very little cause for concern. The standard of duty laid down by the Bill is pitifully low, compliance to the Act being required only where "reasonably practicable" which will allow employers to claim safety is far too expensive – this could well affect safety standards in chemicals.<sup>66</sup> After the disgraceful way the unions were treated by the Factory Inspectorate one would expect a statutory obligation in the new legislation to report

to and to disclose information to trade union representatives. In fact the Bill even in its amended form will still allow the Inspectorate to decide when information should be disclosed.<sup>67</sup> In the detailed technical investigations following explosions like that at Nypro it is essential that workers' representatives receive all the technical reports of the Inspectorate. The stewards at Nypro after seeing the Factory Inspector did in fact get such an undertaking, and they have through their unions employed their own chemical engineer Victor Marshall. But what the stewards at Nypro had to do through trade union and political pressure should be statutorily available to all workers. The experience of Nypro suggests that the Bill should go beyond its suggestions for safety committees and safety representatives. Employers will only need to "consult" with these representatives, and the representatives will have few powers. Nypro has shown the urgency of introducing "workers' inspectors" with full rights of inspection, and the right to close down processes regarded as dangerous. This is not a revolutionary step; "workmen's inspectors" were forced on the coal industry by the miners many years ago.<sup>68</sup> Michael Foot also seems intent on countering criticism of the Bill by saying that points of criticism can be dealt with through "a system of regulations and approved codes of practice". A clause introduced by David Watkins and seconded by John Ellis to place stringent controls on the building of potentially dangerous plants on the 18th June was dealt with in this way.<sup>69</sup> After Flixborough more substantial undertakings are necessary from the Labour government. Their Health and Safety Bill is totally inadequate and a campaign is necessary by the trade union movement to force them to bring in further legislation to help to prevent another explosion like the one at Nypro.

### *Lessons for the Labour Movement*

*The Multinational Chemical Industry* – Nypro has once again exposed to the labour movement the power and the potentially dangerous control that large multinationals have in the chemical market. In recent years we have had the negligence of Distillers, the distributors of Thalidomide, the lethal pollution of R.T.Z. at Avonmouth and the unscrupulous pricing policies of Hoffman La Roche with the drug Librium. The fact that D.S.M. is a nationalised company and its British partner is the National Coal Board emphasises again the fact that nationalised industries are totally incorporated within the private capitalist system and strengthens the argument for political controls going beyond mere nationalisation. Real controls have got to be exerted on multinational companies both by the state and the workers in these companies. Union action at Nypro would probably have been much more effective if links had been forged with D.S.M. workers in similar plants in Holland and America. Multinational trade unionism must follow and challenge multinational capital.

*The safety of chemical plants* – Nypro showed perhaps as nothing else could have done the immediate threat posed by advanced technology to workers employed in and living near chemical plants. The Labour Government has so far suggested merely an internal committee of experts in the Department of Employment to look at hazards in and around plants like Nypro. Presumably this committee will report privately to the new Health and Safety Commission who will then prescribe action to be taken. This is an attempt to evade the central issue emerging from Nypro – how safe are chemical plants? The trade union and labour movement should not

allow the Government to duck this issue — the stakes are far too high, and many workers' lives could be affected by the outcome.

*Labour authorities and planning* — Labour controlled authorities should give a lead in intensifying their scrutiny of hazardous processes and plants. It is essential to bring in the trade union movement on discussions about the siting of plants and the safety of new processes. Committees which draw up emergency plans should include trade union representatives — planning and safety are too important to leave to the professionals and to voluntary bodies.

*The Trade Union Response* — trade unions in general take safety matters far too lightly — only 3 unions have full time safety officers. Nypro also showed that specialist officers are often difficult to contact and deploy in crisis situations. The stewards at Nypro invited chemical engineers of their own choosing to inspect the plant and established an independent role for the union. Trade unions obviously need to establish counter pressures in this type of situation to the pressures exerted by employers and to do this effectively they need to be able to call on expert technical advice. The NUM has for some years now employed its own mining engineers and unions like the T&GWU, with many members in industries such as chemicals, which involve very complex processes, should surely be thinking very seriously about retaining the services of engineers. If Nypro is to be rebuilt it is vital that the unions insist on rights of inspection for their own nominated chemical engineer to ensure that June 1st is never repeated.

It was argued that we had reached a turning point in industrial safety similar to the one in the 19th century which produced campaigns on the Factory Acts. Unfortunately there is little evidence at present that the trade union movement feels the urgency of the situation, although there are some indications of the development of different attitudes. The Robens Report tried to neutralise the role of trade unions in safety matters by suggesting that “There is no legitimate scope for ‘bargaining’ on safety and health issues”.<sup>70</sup> The Labour Government has been willing to accept this nonsense by stressing joint consultative machinery in its legislation. But some unions have already started bargaining very seriously indeed. Two recent examples are the campaign of the POEU on compensation awards, and perhaps more relevant to in the context of Nypro the “environment” sections of the ICI Wage Claims since 1971 spearheaded by the T&GWU.<sup>71</sup> where issues of pollution and safety are included as essential components in wage bargaining. After Nypro it is essential that the strategy started at ICI should be taken up by unions in all sections of British industry.

The Nypro experience showed also the potential strength of trade unions when organised at shop steward level. The inexperienced stewards at Nypro were able to respond positively and to raise demands based on first hand information and knowledge of the situation. An extension of this type of organisation is perhaps needed by linking up shop stewards committees in different chemical companies and plants to form a national combine committee which would be invaluable in exchanging information on safety matters and would be able to put constant pressure on the employers to improve conditions and to reduce hazards on plants in the industry.

The Nypro explosion dominated the headlines for a few days and then like many industrial disasters it quietly slipped from the news. But Nypro was not simply another unfortunate industrial accident. The explosion has far-reaching implica-

tions for Government, Local Authorities, Trade Unions, and for the future planning and control of the British economy. It is perfectly clear that the only way these implications can be brought out into the open is by a vigorous campaign organised by workers in the trade union and labour movement. A failure to take these implications seriously will simply mean more Nypro explosions in the future.

## FOOTNOTES

1. Much of the information about the expansion phases of the plant can be found in *Chemical Age International* June 29th 1973, pp. 4-5.
2. *Chemical Age*, 7th June 1974.
3. *Times Business News Diary*, 3rd June 1974
4. *Chemical Age* Benelux Survey, 29th March 1974
5. *Chemical Age*, 3rd May 1974.
6. *Chemical Age* "Profile" on Bogers, 29th March 1974.
7. *Chemical Age*, 3rd May 1974.
8. *Times Business News Diary* loc. cit.
9. *Financial Times*, 3rd June 1974

### *The D.S.M. Caprolactam Process*

<i>Subsidiaries</i>	Caprolactam output per year
Netherlands	160,000 tonnes
US (doubled by 1976)	75,000
<i>Joint Ventures</i>	
Britain	75,000
Mexico	40,000
Colombia	16,000
Brazil (1975)	35,000
<i>Know-how sold to</i>	
Russia	100,000
Taiwan	100,000
Japan	75,000
Korea	33,000

Source: *Economist*: 22nd June 1974

10. H. Van der Lugt of Hercules Europe S.A. to a meeting of the Society of the Chemical Industry *Chemical Age*, 26th April 1974.
11. *Chemical Age*, 14th June 1974.
12. *Chemical Age*, 19th April 1974.
13. *Financial Times*, 4th June 1974.
14. *Sunday Times*, 2nd June 1974.
15. *Economist*, 8th June 1974.
16. *Labour Leader*, May-June 1974, p. 5.
17. "Detailed figures of consumption of caprolactam in the UK are confidential under the Statistics of Trade Act" (Michael Meacher in answer to a Parliamentary question on Monday 17th June 1974) in *Trade and Industry*, 27th June 1974.
18. *Chemical Age*, 7th June 1974.
19. Article on DSM by John Wicks in *Chemical Age*, 10th May 1974.
20. An example of the extensive international market in caprolactam was the fact that supplies were sought to replace Nypro's production in Latin America, Japan, and surprisingly the Soviet Union - "there were recent reports of 600 tonnes of Soviet caprolactam being offered for sale at 2,000 dollars per tonne before the Nypro explosion, which disappeared from the market shortly afterwards", *Chemical Age*, 14th June 1974.
21. *Financial Times*, 4th June 1974.
22. *Chemical Age* editorial, 14th June 1974.
23. See Appendix 1.
24. *Financial Times*, 3rd June 1973.
25. *Chemical Age*, 14th June 1974.
26. 1963-72 Coke Ovens 21.00 Iron and Steel 17.8 per 100,000, *Financial Times*, 3rd June, 1974.

27. *Daily Telegraph*, 3rd June 1974.
28. *Daily Express*, 3rd June, 1974.
29. *Observer*, 9th June, 1974.
30. *Guardian*, 3rd June 1974.
31. *Observer*, 9th June 1974.
32. *Economist*, 22nd June 1974, p. 62.
33. *Sunday Times*, 2nd June 1974.
34. Nypro turnover figures from Labour Research Department and *Guardian* 3rd June 1974. Capacity figures, *Chemical Age*, 7th June 1974.
35. *Guardian*, 3rd June 1974.
36. *Chemical Age*, 7th June 1974.
37. *Economist*, 22nd June 1974.
38. *Financial Times*, 3rd June 1974. "There are now probably more than a dozen British petro-chemical plants with a similar devastation potential to the Nypro works at Flixborough", Jon Tinker "Flixborough and the Future" in *New Scientist*, 6th June 1974.
39. *Economist*, 8th June 1974.
40. *Times*, 3rd June 1974.
41. Councillor Peter Raby quoted in *Scunthorpe Star*, 7th June 1974.
42. *Scunthorpe Star*, 21st June 1974.
43. "Buoyant trading conditions in export markets had helped Laporte Industries, which has a large plant at Stalingborough, attain all-time record profits during 1973 . . . group pre-tax profits were £7,329,000 compared with £3,271,000 for the previous year". *Scunthorpe Evening Telegraph*, 18th June 1974.
44. *Chemical Age*, 31st May 1974.
45. Speech in Amsterdam reported in *Chemical Age*, 15th March 1974.
46. *Times*, 3rd June 1974.
47. Editorial in *Chemical Age*. 14th June 1974.
48. In House of Commons 3rd June 1974, quoted *Lincs. and South Humberside Times*, 7th June 1974.
49. *Guardian*, 4th June 1974.
50. Speech delivered January 10th 1974 quoted *Chemistry and Industry*, 2nd February 1974.
51. U.N. Survey quoted *Chemical Age*, 5th April 1974.
52. *ibid.*
53. Calculations of Economist Intelligence Unit in *Chemistry and Industry* 19th January, 1974.
54. ICI Wage Claim 1974.
55. P. Savage "Investment Boom for UK Industry?" in *Chemical Age*, 11th April 1974.
56. *Scunthorpe Evening Telegraph*, 11th June 1974.
57. *Scunthorpe Evening Telegraph*, 6th June 1974.
58. Scunthorpe Group, "The Struggle in Steel" in *Trade Union Register 3*, Spokesman Books, 1973
59. Perhaps a result of Dutch experience see C. Levinson *International Trade Unionism*, 1972, pp. 322-4.
60. *Scunthorpe Evening Telegraph*, 18th June 1974,
61. *Scunthorpe Evening Telegraph*, 3rd June 1974.
62. See Appendix 2
63. See Appendix 3
64. Michael Foot in answer to question from Cyril Smith in House of Commons, June 3rd, *Guardian*, 4th June 1974.
65. Jon Tinker, "Flixborough and the Future", *loc. cit.*
66. See O.H. Parsons, "Safety - A Step Back?" in *Labour Research*, May 1974, also Bob Cryer "The Aftermath of Flixborough", in *Tribune*, 14th June 1974.
67. The original Health and Safety at Work Bill contained the following clause 27 (8) 'an inspector if he thinks fit, may for the purpose of assisting in keeping persons employed at any premises which he has power to enter informed about matters affecting their health, safety and welfare, give to such persons or their representatives' (type of information then specified)

amended clause 27 (8) reads:

"an inspector shall, in circumstances in which it is necessary to do so for the purpose of assisting in keeping persons (or the representatives of persons) employed at any premises adequately informed about matters affecting their health, safety and welfare, give to such persons or their representatives" (type of information then specified)

My emphases - The inspectorate presumably decide when 'circumstances' make 'it necessary to do so'.

68. See Appendix 4.
69. *Scunthorpe Evening Telegraph*, 19th June 1974.
70. *Robens Report*, para 66, quoted Topham p. 6.
71. See extracts in Appendix 5.

## APPENDIX I

Table 1

Fatal accidents and fatal and Group 1 annual incidence rates (per 100,000 employees) 1969-72 in manufacturing and construction industries.

No.	Description	1969			1970			1971			1972		
		Fatal Accs	Incidence Fatal Group 1	Fatal Accs	Incidence Fatal Group 1	Fatal Accs	Incidence Fatal Group 1	Fatal Accs	Incidence Fatal Group 1	Fatal Accs	Incidence Fatal Group 1		
III	Food, Drink												
	Tobacco	11	1.9	860	21	3.3	630	25	4.0	690	16	2.6	630
IV	Coal & Petroleum Prod.	4	11.1	530	3	7.8	630	2	5.6	460	3	9.1	450
V	Chemicals & Allied	26	8.1	710	19	6.6	660	22	7.9	490	14	5.2	600
VI	Metal Manufact.	66	13.4	1110	61	13.5	1310	58	13.9	1160	46	11.9	1010
VII	Mech. Eng.	33	3.4	750	26	3.2	800	24	3.1	710	27	3.9	660
IX	Elect. Eng.	6	0.9	400	11	1.9	340	7	1.2	330	4	0.7	320
X	Shipbuilding	25	15.5	980	19	12.8	1050	18	11.9	810	24	16.5	870
XI	Vehicles	14	2.2	640	25	4.2	590	13	2.3	520	13	2.3	470
XIII	Textiles	14	2.3	480	10	1.8	540	20	3.9	510	6	1.2	530
XVI	Bricks, Pottery, Glass, Cement, Etc.	25	8.9	860	32	12.1	990	18	7.1	840	22	9.0	870
XVII	Timber, Furniture	15	6.1	990	12	5.1	770	9	3.9	800	9	3.9	860
XVIII	Paper, Printing, Publishing	10	2.2	620	10	2.2	640	10	2.3	460	13	3.1	510
XIX	Other Manufact. Industry	17	5.8	580	8	3.0	610	6	2.3	580	8	3.2	560
Total Manufact.		285	4.4	710	278	4.3	670	251	4.1	590	214	3.6	580
XX	Construction	268	22.4	920	204	18.5	810	201	19.2	750	190	18.3	800

Source: Appendix 4, HM Chief Inspector of Factories Annual Report 1972, p. 115.



Table 2

Reported accidents 1972 by industry (S.I.C. 1968 by individual M.L.H.) with  
 a) annual all accidents incidence rates 1972  
 b) averages of fatal and group 1 incidence rates 1969-72

Industry	Min List Heading	Total Reported Total	Fatal	Reported Accs, 1972 per 1,000	Ave. of incidence rates per 100,000	
					1969-72	Gp.1.
ORDER IV COAL & PETROLEUM PRODS.		1792	3	54.3	8.4	520
Coke Ovens and Manufact. fuel	261	1174	—	93.2	13.0	480
Mineral Oil Refining	262	471	3	28.2	7.0	530
Lubricating Oils & Greases	263	147	—	39.7	—	640
ORDER V CHEMICAL AND ALLIED INDUSTRIES		9169	14	34.3	6.9	610
General Chemicals	271	3142	7	40.5	11.2	610
Pharmaceuticals	272	1280	1	32.6	2.4	450
Toilet Preparations	273	354	2	21.5	3.0	480
Paint	274	508	1	30.6	9.0	730
Soap and Detergents	275	597	1	50.2	6.1	880
Synthetic Resins, Plastics, Synthetic Rubber	276	1374	1	40.1	6.3	970
Dyestuffs, Pigments	277	406	—	24.6	8.0	180
Fertilisers	278	291	—	39.3	5.0	850
Other Chemical Inds.	279	1217	1	25.5	2.6	440
ORDER VI METAL MANUFACTURE		25,642	46	66.3	13.2	1150
Iron and Steel (gen)	311	12,198	32	68.0	20.6	1120
Steel Tubes	312	1856	5	57.1	8.4	890
Iron Castings, etc.	313	6609	8	83.2	9.6	1380
Aluminium & Alimnm alloys	321	2045	1	52.7	3.6	1180
Copper brass, Copper alloys	322	2007	—	54.1	2.1	1020
Other base metals	323	927	—	47.5	4.3	980

Source: Appendix 5, HM Inspector of Factories *Annual Report, 1972*, p. 116.

## APPENDIX II

*Statement by the Executive Committee of the Brigg and Scunthorpe Constituency Labour Party on the Nypro Disaster 6th June 1974.*

At its meeting last night the E.C. of the Brigg and Scunthorpe CLP offered its sincere condolences to the families of those who died on Saturday in the disaster at Nypro and to all who suffered in any way as a result. The Labour Party supports the call for a Public Enquiry and welcomes the statement made by Michael Foot, the Minister of Employment in the House of Commons. We must make it clear that the type of enquiry we would support would be:-

1. An open enquiry with expert technical members nominated by the different interests involved – the firm, the Government and the Unions.
2. Expert technical help should be made available from the Civil Service to help the workers' representatives at Nypro to collect and evaluate the evidence.
3. The inspectorate should be instructed to work more closely with the trade unions' representatives – their preliminary report was issued without consultations and we feel that this is most unsatisfactory.
4. No interviews with Nypro workers should be carried out by the management, Inspectors, or Police unless the union representative is present. Evidence collected in the initial aftermath of the disaster could have a direct bearing on the enquiry's evidence.

Our view of the nature of the Public Enquiry necessary is supported by the General Secretary of the Scunthorpe and District Trades Council.

With regard to the Appeal Fund, we think it is important that from the start everyone should be clear for what purposes the money is to be used. In our view the major beneficiaries should be the families of those killed, and that any gifts should not result in any deduction in insurance awards. We insist also that the Trade Unions must be consulted on all levels concerning any arrangements that are made no matter by whom.

The Labour Party would like it made absolutely clear that no decisions can be made about the rebuilding of the plant until after the Public Enquiry. We would stress that this is official party policy and all statements made by individual members of the Party will adhere to this view in the future.

## APPENDIX III

*List of Demands Handed to Michael Foot on Behalf of Nypro Joint Shop Stewards Committee on Friday 7th June.*

Following the deaths of 28 workers in the Nypro explosion, trade unionists in Scunthorpe demand the following:-

1. The right to nominate their own representative as a member of the public enquiry.
2. The right to share with other parties in selecting the enquiry chairman.
3. The right to share in framing the terms of reference of the Enquiry. These should include an examination of:

What must be done to make chemical plants safe for workers and the community;

the need for a licensing system for all chemical plants;  
the size of the Factory Inspectorate in relation to the size of the problem;

4. In the meantime we demand that the present high-handed attitude of the Factory Inspectorate towards trade union representatives must end. There must be full consultation between the inspectors and representatives before statements are issued to the press.

There must be full disclosure of information and technical reports to workers' representatives as soon as available before the enquiry.

Workers and their expert advisors must have full rights of inspection on site. The right to inspect plant and accident sites should be extended to all workers in employment under the new Health and Safety Act, as it is under the Mines and Quarries Act.

Workers and their families have suffered the greatest loss in this disaster. They must be given the fullest possible rights in their attempts to find the truth and ensure that other trade unionists and their families will never again have to pay such a terrible price.

#### APPENDIX IV

Tony Topham in his pamphlet, *Health and Safety: A Question of Workers' Control*, (IWC 1974) suggested amendments to the Health and Safety at Work Bill, and although these have failed to find their way into the Act they do give a starting point for a campaign on legislation on Safety to follow the Act. (The Secretary of State for Employment does have powers under the new Act to make regulations which could embody these amendments). The section on workers' inspectors is reproduced below:

##### Trade Union Safety Representatives

*Clause 2*, sub-sections (4) (5) and (6) are reproduced in full below.

“(4) Regulations made by the Secretary of State may provide for the appointment in prescribed cases by recognised trade unions (within the meaning of the regulations) of safety representatives from amongst the employees, and those representatives shall represent the employees in consultations with the employers under subsection (5) below and shall have such other functions as may be prescribed.

(5) It shall be the duty of every employer to consult any such representatives with a view to making and maintenance of arrangements which will enable him and his employees to co-operate effectively in promoting and developing measures to ensure the health and safety at work of the employees, and in checking the effectiveness of such measures.

(6) In such cases as may be prescribed it shall be the duty of every employer if requested to do so by the safety representatives mentioned in subsection (4) above, to establish, in accordance with regulations made by the Secretary of State, a safety committee, having the function of keeping under review the measures taken to ensure the health and safety at work of his employees and such other functions as may be prescribed”.

*Suggested amendments to Clause 2*, subsections (4) (5) and (6).

*Subsection (4)* should be amended to read:

“At a place of work at which five or more persons are for the time being employed there may be elected from among them by the recognised trade union or unions persons to act as safety representatives under this Act in the interests of the persons

so employed. Safety representatives shall have the following powers and functions:

- (a) to carry out at times to be determined by themselves, inspections of the place of work in the interests of the safety and health of the persons who they represent.
- (b) to order the suspension of any work, operation or process within the place of work which appears to them to constitute a danger to the health and safety of the persons employed and working in the vicinity.
- (c) to order the physical evacuation of any working area by employees on any occasion when it seems to them that the continued presence of employees threatens their health and safety.
- (d) to refer cases involving suspension of work or evacuation of work areas to the employer, and to conduct negotiations with him for the introduction of safe and healthy conditions in the work, operation, process or area subject to the suspension or evacuation order.
- (e) to inspect the scene of any accident or occurrence and any machinery or plant in the vicinity of any such accident or occurrence.
- (f) to receive copies of any documents which the employer is by or by virtue of the Factories Act 1961, or by virtue of this Act, required to keep.
- (g) to receive copies of all reports and inquiries related to their place of work by HM Factory Inspectors, and by the Commission and Executive.”

*Subsection (5)* should be amended to read:

“It shall be the duty of every employer

- (a) on receipt of a reference from the safety representatives under subsection 4(d) above to enter into negotiations with the safety representatives in order to agree upon a safe and healthy condition in the work, operation, procedure or process. Pending mutual agreement between the employer and the safety representatives on the conditions for a safe and healthy resumption, it shall be the duty of the employer to comply with and endorse the order of the safety representatives in respect of the suspension and/or evacuation.
- (b) to pay agreed earnings to all employees affected by a suspension or evacuation of work, pending the resumption of work under safe and healthy conditions.
- (c) to afford every facility to safety representatives in the pursuit of their functions in subsection (4) above, including time-off from their place of work without loss of pay, and including leave from work without loss of pay for the purpose of attending a course of training related to their duties as safety representatives”.

*Subsection (6)* should be amended as follows:

Delete the first seven words of line 1.

delete “in accordance with regulations made by the Secretary of State”.

delete all after “employees” in the last line and add:

“and of conducting the negotiations under subsection (4d) and 5(a) above”.

## APPENDIX V

*An Extract from "A Positive Employment Programme for I.C.I." – Wage Claim Submitted to I.C.I. on April 2nd 1971 (T&GWU 1971)*

*"Our environment*

Pollution is the fashionable subject for discussion but it is not as a public relations exercise that we raise this matter as part of this claim. It is essential . . . that we as trade unionists share in making our company not only more prosperous but also more responsible. Here we address you not as "management" but as fellow human beings who have to live together on this little planet called Earth.

Our members are anxious that the growth of their real incomes is not to be at the expense of the health of themselves, their families and their communities. We see this as a vital matter for trade unionists *as* trade unionists. We have three proposals to make in this connection and we do not think they should be contentious:—

(a) Our members at ICI have been in the forefront of developing joint management-trade union committees on safety. We suggest that each side is free to coopt technical experts from local universities, departments of health, etc. so that these committees can increase their effectiveness in promoting safety and good health for those who work at ICI.

(b) We ask that the terms of reference of these safety committees be extended to include the effects of the production process on the whole community, instead of just those who happen to be employed within ICI itself. There is nothing idealistic about this — we are thinking of our members' families and their children's children.

(c) We propose an agreement as part of the settlement of this claim to set up an ICI Central Committee on Environmental Studies. Again, the trade union side will wish to include in its team technical experts, just as we sit here as so-called experts in collective bargaining. The TUC has long recognised the need for a Scientific Advisory Committee which has enabled it to promote important advances in the nation's health".

## APPENDIX VI

*On September 6, 1974 The Times featured a report by the Labour Editor on an investigation by the TGWU into the disaster. It said:*

"An investigation by the Transport and General Workers' Union has concluded that the Flixborough disaster was probably caused by human error. Most of the 29 people killed in the explosion at the Nypro chemical plant at Flixborough, Humber-side, on June 1 were members of the union.

The union's preliminary report, which suggests that the fitting of a temporary pipe was inadequate, will be submitted to the official government inquiry into the disaster, opening in Scunthorpe on Monday.

The report criticises the layout of the plant, the local authority's handling of the plans for it and the management's keenness to maintain full production at all costs. But the union members who produced the report are "more or less unanimous" in

not wanting the employers to go away.

They do not share the opinion of local people that the site should not be rebuilt, considering that, with expert knowledge, the potential dangers could be averted.

The union makes several recommendations about the future design and operation of plants like the Nypro one, which was owned by the National Coal Board and Dutch States Mines, and which manufactured caprolactam, an important ingredient in artificial fibres. An emergency procedure is suggested for all similar chemical plants.

The TGWU report says:

'The employers removed a reactor some months before the disaster took place. They were awaiting a team from Sweden to replace it, but in order to maintain production, a cross-pipe was fitted between reactor no. 6 and reactor no. 4.

From the evidence we have obtained from our members it would appear that this pipe was fitted or supplied by an outside contractor and originally it had some form of jacking underneath to support it, which our members state was removed some time later.

It was this pipe which, according to reports, eventually fractured, thus emitting vapour, and the vapour spread until it found a flame somewhere, probably on the site of the hydrogen plant.'

The report says material was pumped through the cross-pipe at very high pressure and high temperature.

'The question in the first place arising out of this must be: how was this pipe fitted, maintained and inspected, particularly as it is suggested that it may have been defective in some way before the disaster?

In asking this question, the object must be that we do not in any way seek to make a scapegoat out of one or two people or even more who would be responsible for the fitting and maintenance of the pipe.'

The union says the pipe may have been the cause of the explosion but the public inquiry should look into all aspects, including the quality and frequency of inspection.

'It may be that the employers will say that they were sufficiently satisfied with their know-how and could carry out this alteration by themselves. We must question the wisdom and the decision to take this particular step in order to maintain full production.'

Examining the system of inspection, the report adds: 'This is carried out by the local authority and the fact is that there may not be sufficient expertise within local authorities to cope with such situations. Clearly, particularly in multi-production sites, in other refineries many processes are being carried out in which each one is in itself not dangerous but could set up a chain reaction.'

The local authority seems to have had 'little appreciation' of the potential danger and no contingency for disaster appears to have been contemplated.

'We say this because in the construction of these sites, the local authority must have control over the plants submitted to them. These plans ought in future to be clearly supervised by independent experts in the field.'

Mr Victor Marshall, a TGWU chemical engineer, is preparing a further report suggesting changes in construction for such plants and precautions which should be taken, including regular inspection by independent chemical engineers of all sites where such disasters could occur.

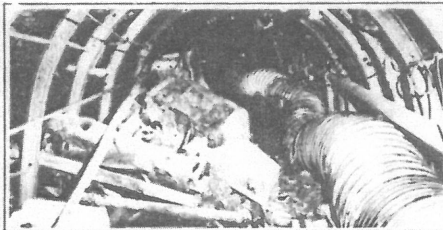
The report also suggests that the warning system may have been faulty because some people on the site did not hear the fire alarm. A public address system was in use but some workers complained they could not hear it when the wind was in the wrong direction. . . ”



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