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FACTORIES

ANNUAL REPORT OF THE CHIEF INSPECTOR OF FACTORIES

FOR THE YEAR 1945

Presented by the Minister of Labour and National Service to Parliament by Command of His Majesty
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these accidents. It is possible to make some industries or processes so ıtomatic that practically all manhandling is eliminated. An interesting :ample is to be found in the tin-plate industry, which has been a prolific urce of handling accidents. An old tin-plate works has been replaced by large modern strip mill in which the material is not manhandled from the ne the coil of sheet metal is fed into the machine until the finished sheets 'e delivered, cut and sorted into piles of "rejects", "doubtfuls" and primes".

Falls account for 13.7 per cent. of the accidents. About half of these 'e falls on the level, and many are caused by stepping or tripping over articles ft lying about. Good housekeeping and supervision, and more care and ought on the part of the individual are the remedies. Defective lighting ays its part in these accidents, and to a greater extent than is generally alised, because, as one Inspector remarks, not all are so clearly attributable bad lighting as one reported to him of a man who tripped over a black cat ı an unlighted blacked-out staircase.

Falls from heights must always be a matter of great concern because the serious injuries they usually entail. Close and continuous watch on ructures and plant is essential to see that no defective or insecure ladders, ages, etc. are in use and that platforms and gangways are provided with :oper fencing. Now that maintenance staffs can be built up once again, is to be hoped that there will be a substantial reduction in this type of :cident. Remembering the accidents which occurred during the application : black-out, the shaken condition of some of the buildings in the bombed reas and the nature of some of the strippers used, it was feared that a ırge crop of serious accidents might occur during the operation of removal. hat this did not result can be attributed to the gangways, crawling boards nd other means of access about roofs provided to facilitate the work of the re guards and the more general acquaintance which it brought with roof-work nd its dangers, aided by some timely publicity in the technical press and dvice given by Inspectors during their visits.

'verhead Travelling Cranes.

Serious accidents, many of them fatal, continue to occur each year to persons ʋorking on or near overhead travelling cranes. Most of them could be ›revented by the adoption of comparatively simple precautions and the exercise ›f ordinary care. In many factories precise rules have been formulated with he object of ensuring that proper steps are taken to prevent such accidents, ıut all too frequently the rules are ignored, with consequences that are distressing to everyone concerned. In one such case the Chairman of a Safety Committee neglected to carry out the rules, for the framing of which he had ›een responsible, and was himself maimed; and in another a workman who vas ordinarily conscientious in observing the rules was severely injured when ıe neglected to do so.

Far too many accidents result from the ease with which access is obtained o the ladders and gangways by which cranes are approached. However good afety rules may be, it is desirable that they should be supplemented whenever practicable by physical barriers or danger warnings. At one large factory, ocked gates at ground level are fitted to ladders giving access to gangways, and the key is kept in the custody of a responsible official; at another a trap-door at the top of the ladder must be raised, and this automatically switches on red danger lamps suitably placed for observation by crane

When anyone works on or near the crane track where he is liable to b struck by the crane, the statute requires effective measures to be take either by warning the driver or otherwise, to prevent the crane approachi within twenty feet. Measures commonly taken are the removal of fuses immobilise the crane, the use of electro-mechanical devices for cutting off th power supply to prevent movement of the crane within the danger zon and the mounting of red flags. One warning device consists of a buzzer the driver's cab which is controlled by a switch linked to a rocking arm the outside of the cab. Brackets carrying a fixed arm are attached to th girders supporting the crane track at a suitable distance from the place whe the work is being carried out, and this fixed arm engages with the trippi arm for the buzzer switch as the crane moves into the danger zone, and th driver is warned to stop. These safety brackets are placed in position by pla fitters whose duty it is to test them for effectiveness and record the result a special log sheet.

Shipbuilding and Ship Repairing.

During 1945 there were reported 17,667 accidents in shipyards or in shi repairing in dry or wet docks, of which 92 were fatal, as compared with 19,9 accidents, 110 fatal, in the preceding year. There was thus a substanti decrease which is in line with the accident trend in industry generally. A estimate made for the Scottish yards indicates a fall of about 14 per cent. i the number of accidents per 1,000 persons employed.

The end of the war was followed by a period of transition during whic the building of warships gave place to the building of merchant ships, an the repairing of bombed and mined vessels to the refitting and conversion craft in order that they might resume their peacetime purposes. A typic example was the re-conversion of a large number of minesweepers to trawle so that they might rejoin the fishing fleets and help to augment the country' food supply. A noticeable feature is the reduction in the number of wome employed, whose useful work, especially as electric welders, helped at a critic time to compensate for the shortage of riveters.

The increased use of electric welding referred to in previous years was sti evident, bringing with it the reorganisation of yards in order to constru ships by this means. In addition to problems relating to the lifting of heav prefabricated parts, this change, together with the increased use of suc inflammable and practically odourless and colourless gases as propane an butane for gas cutting and welding operations in place of acetylene, gav rise to problems concerned particularly with the provision of adequate vent lation in enclosed or confined spaces and the minimising of the risk of expl sion. The incorporation of a stenching agent with these odourless gases i the near future, in order that their otherwise unsuspected presence may b readily detected, should prove a valuable precaution.

A further problem is the provision and adequate use of suitable means t prevent eyeflash, not only among electric welders themselves but also amon others working with or near to them; observation in the yards indicates tha more could be done both by employers and employees by the greater use o screens and goggles to prevent this painful indisposition.

The considerable development during the war years in the use of asbestos either alone or as part of a mixture, for the purpose of heat and sound insula tion aboard ship, with consequent increase in the number of workers expose to risk of injury to health through asbestosis, called for action. If this risk is found to continue, the [illegible] of including some statutory quirements on the subject when the Factories Act Regulations for construc- onal and other work in ships are revised and extended. In the meantime, owever, a letter has been sent to employers' and employees' organisations nd others concerned calling attention to the matter and suggesting certain recautions, which, since they have been accepted both by the Shipbuilding mployers' Federation and by the Trade Unions concerned, should by their doption do much to ameliorate the conditions of work.

The increased attention given throughout the year to methods, mostly ex- erimental, of cleaning outer bottom plating in dry docks and the application y spraying of anti-corrosive and anti-fouling paints has been noted, and hese are also matters which may call for some regulation.

The difficulty experienced during recent years in obtaining suitable timber r staging purposes is now less acute; the position will be further eased by e tendency to use steel thwarts, instead of wooden ones, in conjunction ith lattice uprights. An interesting development noted in staging practice as the use of brackets welded temporarily to the shell plating of a ship on e stocks for the purpose of supporting exterior stages. This arrangement, gether with the use of trestle staging for the lower strakes of plating, ade possible the elimination of both uprights and thwarts, and special rackets, carrying stanchions, were used at intervals to support staging andrails. The unobstructed condition of the berth thereby secured facilitated e assembly and handling of large prefabricated parts.

The periodical meetings of Shipyard Safety Officers have continued to be ell attended. The discussion of such useful subjects as the precautions ecessary in connection with the use of tubular scaffolding in shipyards, the nproved design of ladders and staging trestles, better means of signalling o overhead crane drivers, together with the exchange between one ship- uilding centre and another of information relating to accident prevention, annot fail to be of great value to these officers. One comment, so obvious hat it should be unnecessary:—Unless the Safety Officer is given the proper tatus and authority and adequate time to play his full part and apply in he shipyard the knowledge he has gained at these meetings, much of his enefit will be wasted.

Safety Organisation in Factories.

Inspectors' reports contain many accounts of comprehensive accident pre- vention schemes which are in operation in factories and of a number of new afety organisations which have been started during the year, but on the whole the year has been one of consolidation of ground already gained rather han of spectacular progress. Preoccupation with the change-over to peace- ime production and the inevitable dislocation which large-scale reorganisation nvolved have not encouraged any striking development. With the return to ormal conditions it is much to be hoped that there will be a further spread of the movement. Factory accidents at their present level are estimated to epresent a loss to industry of at least 20,000 workers throughout the year. With the present drive for production, this alone is a strong spur to action, quite apart from humanitarian and other motives.

It is fitting that we should express our appreciation of the valuable assistance we have had from the Royal Society for the Prevention of Accidents in the special wartime safety campaign conducted jointly with them, and I am glad to think that, although our formal association has now come to an end, very close co-operation will continue. During that campaign, posters which have gained an international reputation for their artistic merit as well as their aptitude have been regularly distributed to nearly 7,000 factories;

but admittedly posters, while useful in gaining and keeping attention if fr quently changed, can accomplish little else alone. Accident Preventi Bulletins, which have been not only read but passed from hand to ha and thoroughly digested, have also been produced with such regularity staff shortages and printing difficulties have permitted; while booklet a leaflet publications circulated first in sample form, have been purchased managements for distribution amongst workers literally by the million—publications of this character can be regarded as effective only in so far they indicate a driving force in the background. That driving force is p vided by the Safety Officers and Safety Committees in the factories. stimulate it, residential training and refresher courses for Safety Offic were instituted and are still continuing. The lecturers have been provi from amongst our own staff and that of the Royal Society for the Preventi of Accidents, strongly reinforced by well-known and experienced Saf Officers of large firms and by others whose time has been so generously giv Over 400 students have passed through these courses—still far too few meet the needs and demands of industry. Applications to attend gre exceeded the number of places available, but it was not possible to h additional courses owing mainly to the difficulties in securing accommodati It is hoped that some way will be found of overcoming these difficult I am quite convinced of the valuable contribution these courses can m to the accident prevention movement and that expansion is much to desired. The support given to them is an acknowledgement of the speciali knowledge and skilled technique required by these officers and, I ho also of the need for according them the proper status without which t cannot be expected to carry out their duties successfully.

Inspectors have continued to give active encouragement to internal sa organisations in factories and have given many addresses to Works Sa Committees, foremen and apprentices. They have also attended m of the meetings of the local Industrial Safety Groups at which Safety Offi and others meet to discuss their problems. The number of these Gro has increased during the last two years from 12 to 32, and the three Me politan Groups organised last year two important Conferences addressed Ministers. The Groups have come into existence partly spontaneously partly at the instance of the Royal Society for the Prevention of Accide and of Inspectors. They act as a focus for the Industrial Safety Moven in the area and their influence is not confined to the actual members tends gradually to permeate throughout the area. A typical instance is tha a firm which, as a result of a visit by their assistant engineer to a j meeting of the London Groups, at once set about forming Safety Commit at each of their three works.

The results that may be achieved by a vigorous accident prevention sch are illustrated by the experience of a large engineering firm emplo 11,000 workers. In 1944 a Safety Officer was appointed and a Sa Committee formed, and although the numbers employed remained st the number of reportable accidents fell from 69 in 1944 to 15 last y The frequency rate at another large engineering factory with an active sa organisation of long standing has fallen progressively during the last years as follows: 3.64, 2.81, 2.68, 2.65, 2.55, 2.11, 1.86, 1.67 dow 1.51 in 1945. Many other instances of reduced frequency rates coul quoted such as from 3.4 to 1.8 in a chemical works, 2.5 to 1.6 in a works, 4.4 to 2.15 in a copper mill, 2.7 to 1.4 in a light enginee factory. It is only right to add that some of the firms which have long good accident prevention schemes have experienced a rise—though gene quite a slight one—in the frequency rate during the past year.

f stating what the "toxic limits" are, so that the engineer may have ome basis for his calculations. Toxic limits can never be more than rough vorking guesses, but even though they were precise that would still not nd the engineer's difficulty. Suppose that the vapour formed when a allon of benzene is vaporised needs to be diluted with half-a-million ubic feet of air to be harmless; it will not do for the engineer to pass alf-a-million cubic feet of air evenly through the room for every gallon vaporated, because the benzene will not be evaporated evenly through the oom, but only in the local areas where men are painting, spraying, or preading the benzene. In those areas the local concentrations will be higher han the average, that is to say above the toxic limit. In practice, he asses several times the calculated minimum quantity of air through the oom in an endeavour to take care of local high concentrations. Wartime xperience in aeroplane dope shops indicates that the method can work afely as far as is known at present. But what is the price? The air as not only to be moved but during much of the year it has to be heated as vell, which is a very costly matter indeed. So for reasons of economy lone, particularly as fuel is so precious, general ventilation should never e used unless total enclosure or "fume-cupboards" or other methods of ocal exhaust are quite impracticable.

In his desire to save the heat otherwise wasted in ventilation systems rovided to remove dust or fumes the engineer is asking at present whether e could not pass the contaminated air through some sort of filter that vould strip it of its impurities and allow it, with the heat it still contains, o be passed through the workroom again. The idea is an attractive one ut in practice it is inadmissible unless filters of a sufficient efficiency are vailable. Much work on this problem is being carried out at the present ime, and the Chemical Section is closely concerned with it.

The remarks made above about ventilation of "fumes" and "vapours" pply equally well to dust, except that in cases of dust the problem is comlicated by the fact that the harmfulness may also depend on the sizes of the articles.

The problem of the removal of dust from the air has become pressing n the last year or two, as it is now common knowledge that injury may rise not only from the well-recognised poisonous dusts, such as those of ead, silica and asbestos, but also from a much wider range. It is to be emembered, too, that the Factories Act requires the removal not only of njurious, but also of "offensive" dusts.

Dust Estimation.

Cotton spinning mills, foundries, brickworks and potteries are amongst those factories which have provided problems involving the microscopical examination of dust samples, and for this purpose a projection microscope has been obtained. Electrostatic precipitation apparatus has also been obtained for the collection of samples big enough for micro-chemical analysis by the Government Laboratory. For identification of material in quantities too small for chemical analysis or of complex mixtures of silicates still rather beyond the scope of chemical analysis, X-Ray diffraction methods are being introduced in collaboration with the National Physical Laboratory and the Government Laboratory, whilst the possibilities of the electron microscope and of electron diffraction are being explored.

It is proper to acknowledge here the very great debt the Factory Department owes to the Government Laboratory, who carry out all the Department's chemical analyses. The Chemical Section also looks to the Laboratory for advice on sampling, on the interpretation of the results of analyses, and on numerous other related problems.

Radio-active Materials.

The dangers from X-rays and from the radiations from radio-activ materials as used at present in industry are now receiving close attention Fortunately the solutions have been simple hitherto, whatever the futur may hold; where gas or dust from radio-active materials are concerned the same principles are applicable as for non-radio-active gases and dusts Protection from the radiations themselves is given by suitable screens, o by working at a suitable distance from the source of the radiation. Th measurement of the amount of exposure is much easier than in the case c gases or dusts; the workers exposed have only to carry in their clothin a photographic film or an ionisation chamber to enable a measure of th total exposure over a given time to be made.

Escapes of Gases.

The considerations above refer chiefly to cases where the poisons ar liberated in the air of the room itself, but the most serious accidents all happen when the poison accidentally escapes from the plant designe to enclose it, or when men enter such plant.

The commonest poison, by far, is carbon monoxide in different gaseou mixtures such as coal gas, producer gas, water gas and blast furnace ga and the ways in which it causes injury follow a pretty constant patter year by year. Accidental and undetected escape of gas from such plant w presumably always be a source of accident, particularly as in some cas (washed blast-furnace gas is one example) there is no smell to give warnin that the gas is present. But accidents ought not to happen when it clearly known that the gas is escaping. To quote an example: an accide occurred at a steelworks where the gas flues run below ground, and t access doors to these flues are in pits. A mild explosion at the time lighting a furnace had disturbed the luting round one of these doors, ar after arranging for reduction of the gas pressure the foreman descend into the pit to lute the door afresh. He was fully aware that the door w leaking—it was for that very reason that he entered the pit—and, as for man he would have been expected to realise the danger, yet he did n put on the breathing apparatus that was at hand, and was dead in a fe minutes.

There are two factors at work that will reduce accidents like this. Ne types of self-sealing explosion doors are coming into use, and more co venient, more comfortable and safer breathing apparatus is being introduce consisting of a face-piece connected by flexible hose for attachment at sui able points to a fixed compressed air main lacing the whole plant.

A simple but sensitive test for carbon monoxide should prevent ma accidents, and fortunately one will soon be available. The Chemic Inspectors therefore look forward to a future when big plants, such as bla furnaces, will be fitted at many points with automatic sampling apparat that will detect and notify the presence of dangerous gas in any part of t plant. This is still a dream as far as carbon monoxide is concerned, b it is a very real fact on one plant where hydrogen sulphide is the dange

The opening of plant containing poisonous gas must always be attended b some risk, unless breathing apparatus is worn. If the part to be opened separated from the source of gas only by a valve, failure of that valve mea almost certain accident, and the following case is quite typical. A by pass valve which had been repaired was to be returned to its position a meter-house, and to prepare for this the stop-valves on each side of th meter were screwed down. Owing to wear on the shaft of one of the valve

Another aspect which counsels caution is that we have records of at least one death which we ascribed to the inhalation of particles of aluminium; and there are also some continental observations attributing harmful effects to the inhalation of such dust and, experimentally, the effects of alumina on tuberculous infections to which silicotics are so prone is not settled.

Evidently, intensive and intricate research on both the therapeutic and preventive sides on a considerable scale is required which is properly a matter for the Medical Research Council. The problem was therefore referred to Sir Edward Mellanby, and the Medical Research Council agreed to accept the responsibility for the prosecution of a very extensive programme of research, with which we will co-operate, of course, to the full. A start has already been made, and a number of firms and organisation are co-operating or have expressed their willingness to do so.

For several years past experimental work on the production of asbestosis has been carried out at the British Post Graduate Medical School by Professor E. J. King. This research is financed by Turner Brothers Asbestos Company Limited, who have also placed the resources of their Research Department at the disposal of the investigators. Experiments have been conducted with rats and rabbits in which short-fibre asbestos (2.5 μ) and long-fibre (15 μ) have been introduced into the lungs. In parallel experiments aluminium was mixed with the asbestos to study any retarding effect it might have on the development of pathological lesions due to the asbestos. The long-fibre asbestos showed evidence, on histological examination of the lungs, of a more pronounced pathological effect than the short. There was more blockage of bronchioles, more retention of the asbestos in intra-alveolar nodules, more reticulin fibrosis, and not much foreign-body giant cell reaction. With the short-fibre asbestos, there was less blockage, the nodules were smaller and interstitial rather than intra-aveolar, and foreign-body giant cell reaction was pronounced with evidence of active elimination of the dust. Aluminium modified this histological picture only slightly, but the rats receiving aluminium plus asbestos appear to live longer than those receiving asbestos alone.

Special Investigations.

The work of the Medical Branch seems to increase steadily year by year in range and amount. It is not possible to detail it fully here, but an attempt to give an idea of the range was indicated in the Annual Report for 1943 (page 44). Mention should be made, however, of some of the more important investigations commenced, carried on or completed during the year under review. These included the enquiries into the health of welders and foundry workers, now in an advanced state; the effects of work with electrically driven vibrating tools; other subjects studied were the crushing of basic slag; "trigger finger"; the suitability of welding as an occupation for workers disabled by silicosis or other form of pneumoconiosis; the possibility of hydatid infection in wool sorting (negatived on investigation); the effects of work involving exposure to chloroform and ether; an alleged risk of silicosis from the grinding of card clothing (disproved by investigation). Several enquiries involved long and intricate investigation, some were carried out in collaboration with other workers in this field, and the detailed results will be published elsewhere. A number of papers on industrial health subjects were contributed by members of the Branch to medical periodicals.

With the return of doctors from war service the Branch will soon be brought up to its authorised establishment, and it should be possible to press on with this important section of the work.

TABLE III.

Industrial Diseases.

Particulars of the cases of industrial poisoning or disease notifiable under Section 66 the Factories Act, 1937, and under Section 3 of the Lead Paint (Protection agai Poisoning) Act, allowing comparison with previous years, are given below.

Disease and Industries	Reported Cases								
	1900	1910	1920	1930	1940	1942	1943	1944	19[illegible]
Lead Poisoning ...	$1,058^{38}$	505^{38}	289^{44}	265^{22}	108^{6}	72^{8}	46^{6}	41^{5}	45
1. Smelting of Metals	34^{1}	34^{8}	45^{2}	37^{1}	11	3	7^{1}	2	[illegible]
2. Plumbing and soldering	9	25^{1}	3^{1}	6^{1}	4	3	1	1	[illegible]
3. Shipbreaking ...	—	—	3	24	6	3	—	1^{1}	1
4. Printing	18^{2}	33^{4}	9	7	—	1	1	—	—
5. Other contact with molten lead ...	30^{1}	17^{1}	13^{2}	19^{2}	21^{1}	13	9	6	[illegible]
6. White and red lead works ...	377^{6}	44^{1}	28	5^{1}	17	7^{1}	5	2	[illegible]
7. Pottery	210^{8}	78^{11}	25^{13}	23^{10}	6^{8}	6^{2}	2^{3}	—	—
8. Vitreous enamelling	11	17	2	2	1^{1}	—	—	—	[illegible]
9. Electric accumulator works ...	33	3^{1}	47^{3}	36	15	10	4	3	1[illegible]
10. Paint and colour works	56^{1}	17^{1}	9	6^{1}	7^{1}	1	4	5	[illegible]
11. Coach and car painting ...	70^{5}	70^{8}	13	10	—	—	1	1	1
12. Shipbuilding ...	32^{2}	21^{8}	9	5^{1}	1	5^{1}	—	—	1
13. Paint used in other industries ...	50^{5}	51^{2}	10^{1}	5	5	3	2	1	—
14. Other industries...	128^{7}	67^{3}	27^{1}	16^{1}	4	11^{2}	6^{1}	11^{2}	[illegible]
15. Painting of buildings	—	—	46^{21}	66^{13}	10	6^{2}	4^{1}	8^{2}	[illegible]
Phosphorus poisoning	3	—	—	—	—	—	2	1	—
Mercurial poisoning ...	9	10^{1}	5	3	5	1	4	7	5
Arsenical poisoning ...	22^{3}	7	3	1	2^{2}	6	2^{1}	3	—
Manganese poisoning...	—	—	—	—	—	—	1	1	—
Carbon bisulphide poisoning	—	—	—	—	1	—	—	1	—
Aniline poisoning ...	—	—	—	24	64	204	79	55	31
Chronic benzene poisoning	—	—	—	—	3^{3}	1^{1}	1^{1}	1^{1}	[illegible]
Toxic jaundice ...	—	—	6	—	20^{4}	27^{6}	16^{4}	12^{1}	[illegible]
Toxic anaemia ...	—	—	—	—	—	14^{3}	7^{4}	12^{6}	[illegible]
Compressed air illness	—	—	—	—	3^{1}	—	1	1^{1}	[illegible]
Anthrax	37^{7}	51^{8}	48^{11}	43^{6}	37^{5}	25^{1}	17^{4}	8^{3}	[illegible]
1. Wool	10^{2}	28^{3}	25^{7}	13^{1}	17^{8}	7	6^{1}	3^{1}	—
2. Horsehair ...	12^{3}	6^{1}	5^{1}	1	2	2	—	1	[illegible]
3. Hides and skins	9^{1}	14^{3}	17^{3}	24^{4}	13	15^{1}	8^{2}	4^{2}	[illegible]
4. Other industries...	6^{1}	3^{2}	1	5^{1}	5^{3}	1	3^{1}	—	
Epitheliomatous Ulceration	—	—	45^{1}	194^{36}	166^{18}	113^{8}	160^{15}	205^{20}	21[illegible]
1. Pitch	—	—	32	44^{1}	85^{1}	52	54	99^{1}	8[illegible]
2. Tar	—	—	10^{1}	53^{9}	34^{3}	33^{3}	57^{1}	61^{2}	9[illegible]
3. Paraffin	—	—	3	—	1	—	1	—	[illegible]
4. Oil	—	—	—	97^{26}	46^{11}	28^{6}	48^{14}	45^{17}	3[illegible]
Chrome Ulceration ...	—	—	126	95	121	89	226	121	9[illegible]
1. Manufacture of bichromates ...	—	—	77	6	14	14	9	12	1[illegible]
2. Dyeing and finishing	—	—	43	15	6	2	—	4	[illegible]
3. Chrome tanning...	—	—	4	5	4	4	7	2	—
4. Chromium plating	—	—	—	57	57	24	23	18	3[illegible]
5. Other industries...	—	—	2	12	40	45	187	85	4[illegible]

The [illegible] figures relate to cases, the raised figures to deaths. Fatal cases r[illegible]

This recalls the experience of the Medical Branch some years ago (1930-31) when somewhat similar effects on exposed mucous membranes were found in a small group of men exposed to oil fuel soot in their work of cleaning boiler flues of oil burning ships. A sample of this soot was examined at the time by the Government Chemist and was found to contain 40 per cent. of water soluble iron sulphate—derived from the sulphur of the oil fuel. This, on burning, would be converted into sulphuric acid and is then neutralised by the iron in the flues. In contact with water the soot was strongly acid and this was thought to be the cause of the irritant effect on mucous membranes.

Pneumoconiosis.

This subject was discussed in some detail in the previous report with regard to the effect of preventive measures as disclosed by examination of the available data. The tables set out below have been brought up to date by the inclusion of particulars of 508 deaths during the year from silicosis with tuberculosis, 11 deaths from asbestosis or asbestosis with tuberculosis, 10 deaths from byssinosis, and 75 from other forms of pneumoconiosis, that is to say, a total of 604 deaths from all forms of pneumoconiosis.

TABLE V.

CASES INVESTIGATED UP TO END OF 1945.

	Number of Deaths	Average age at Death	Duration of Employment in years		
			Longest	Shortest	Average
SILICOSIS.					
Pottery :—					
Silicosis	432	60·2	62·0	2·8	38·8
Silicosis with Tuberculosis	359	55·1	67·0	5·0	34·6
Sandstone :—					
Silicosis	183	58·4	60·0	9·0	39·1
Silicosis with Tuberculosis	190	56·2	55·0	5·0	37·0
Grinding of Metals :—					
Silicosis	85	57·7	56·0	14·0	35·9
Silicosis with Tuberculosis	177	53·5	53·0	2·8	32·8
Sandblasting :—					
Silicosis	54	48·5	28·0	1·7	12·0
Silicosis with Tuberculosis	85	48·1	46·0	2·0	12·7
Manufacture of Scouring Powders :—					
Silicosis	12	38·1	37·0	2·3	8·4
Silicosis with Tuberculosis	6	40·8	11·2	2·0	7·0
Miscellaneous :—					
Silicosis	136	53·5	57·0	1·5	22·3
Silicosis with Tuberculosis	126	50·1	50·0	0·7	24·6
Total :—					
Silicosis	902	57·6	62·0	1·5	34·1
Silicosis with Tuberculosis	943	53·4	67·0	0·7	31·3
ASBESTOSIS.					
Asbestosis	134	46·9	48·0	0·5	14·9
Asbestosis with Tuberculosis	67	39·0	29·0	0·8	10·2

TABLE VI.

DEATHS FROM FIBROSIS OF THE LUNG, INCLUDING SILICOSIS, ASBESTOSIS, PNEUMOCONIOSIS AND BYSSINOSIS (ENGLAND AND WALES).

1940–1945.

	1940	1941	1942	1943	1944	19
SILICOSIS :—						
1. Refractories industries	16	12	7	7	6	
2. Pottery, Manufacture of	53	45	47	41	32	4
3. Sandstone Quarrying and Dressing	42	24	14	24	26	2
4. Sandstone masons	67	58	40	53	31	4
5. Metal Grinding	24	13	13	11	7	1
6. Sandblasting	13	4	4	6	7	
7. Steel dressing and cleaning of castings	4	9	9	4	10	
8. Stone, pebble, flint and sand crushing	5	1	2	1	4	—
9. Scouring powders, Manufacture of	—	2	—	1	1	
10. Abrasive wheel Manufacture ...	—	—	—	1	1	
11. Glass cutting and bevelling ...	—	1	2	—	—	—
12. Millstone dressing	—	—	1	—	—	—
13. Slate quarrying and dressing ...	7	6	4	6	7	
14. Granite quarrying and dressing ...	1	1	3	2	—	
15. Tunnel mining (Sewage works, etc.)	2	—	5	4	4	
16. Coal Mining	232	196	230	276	277	32
17. Gold Mining (South Africa) ...	10	7	7	4	9	
18. Tin Mining	21	17	12	14	11	1
19. Iron ore (haematite) mining ...	20	4	7	5	7	
20. Lead mining	—	1	3	1	1	
21. Copper mining	—	1	2	1	—	—
22. Barytes mining	3	3	—	4	—	
23. Clay mining	—	—	—	1	—	
24. Mining Engineers	—	—	3	1	—	—
25. Miscellaneous	2	1	2	2	4	[illegible]
Total—Silicosis	522	406	417	470	445	50[illegible]
ASBESTOSIS	11	17	11	8	10	1[illegible]
PNEUMOCONIOSIS :—						
Coal Mining	—	—	—	—	34	6[illegible]
Other Industries	—	—	—	—	3	1[illegible]
BYSSINOSIS	—	—	6	7	1	1[illegible]
OTHER CASES OF FIBROSIS ...	650	461	443	493	531	52[illegible]
GRANT TOTAL	1,183	884	877	978	1,024	1,13[illegible]

Dermatitis.

There was a decrease of over two thousand in the cases of dermatitis (5,99 voluntarily reported in 1945. Reference to current figures for compensati for dermatitis would give the clue as to whether a smaller proportion th formerly of such cases was being notified to the Factory Department by t present voluntary system but such figures are not yet available. There h been, however, nothing to suggest that the co-operation of firms in the volu tary reporting of cases of dermatitis has slackened.

As might be expected from the events of 1945 there were fewer cases fro industries closely connected with munitions of war and the bulk of the tw thousand decrease was accounted for by the returns from (1) engineerin (mechanical) (969), chemical manufacture (including explosives and she