

AN OVERVIEW OF OCCUPATIONAL HEALTH

IN THE

DURBAN METROPOLITAN AREA

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P R E F A C E

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This study represents original work by the author and has not been submitted in any form to another university. Where use was made of the work of others it has been duly acknowledged in the text.

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CHAPTER 1

THE VALUE OF AN OCCUPATIONAL HEALTH SERVICE

Occupational Health is one of the four pillars of the discipline of Community Health - the others being epidemiology, biostatistics, and community medicine. For the Department of Health, occupational health is an area of priority concern, since it has a direct bearing on the well-being and productivity of the country's workers and hence on the economic development of the nation. (1,2,3)

In the broad field of medicine, occupational health offers many challenges; both in the study and further development of the epidemiology of occupational health and in its application in the field. Furthermore, the implications of this for both the developed and developing community poses additional challenges. The correct and appropriate application of these principles on the factory floor and in the board-room, has short term and long term benefits at several levels.

At the individual level the benefits are immediate and obvious. At the domestic, community and national levels, the benefits would be in terms of both enhanced productivity and in terms of its contribution to community development.

At the scientific level, the stature particularly of the discipline of Community Health would be enhanced, by its contribution to the alleviation of occupational health problems.

It is estimated that there are about 8 million workers in South Africa. The magnitude of the hazards faced by this class of persons has been starkly illustrated by the Erasmus Commission of Inquiry into Occupational

Health. This has generated much debate, in the medical and nursing fraternity, the economic sector and at the governmental levels on how these challenges may be met.

Thus the need for and existence of an adequate Occupational Health Service, based on sound epidemiological and statistical principles; has direct application in the work place and indirectly in the community. Such a service would be an essential component of a national health service; together with its counterpart in the community viz. Comprehensive Community Medicine. Both components, individually and collectively could make a significant contribution to the health of all the people. (10,25)

CHAPTER 2

OBJECTIVES AND METHOD OF STUDY

2.1 The following objectives were defined for the study:

2.1.1 A study of the existing legislation governing Occupational Health; with particular reference to the Factories, Machineries and Buildings Act.

2.1.2 A review of the Report of the Commission of Enquiry into Occupational Health (Erasmus Commission).

2.1.3 To establish the types and quantity of Occupational Health practices in selected areas, occupations or industries.

2.1.4 A literature review of some of the common occupational health diseases.

2.1.5 Recommendations, applicable to the relevant authorities, industry and the Department of Community Health will be made in terms of this overview.

2.2 The method of study included the following:

2.2.1 A study of the relevant legislations and existing information available from reports and other literature.

2.2.2 Consultation with authoritative sources of information e.g. the Regional Office, the City Health Department and the Department of Manpower Utilization.

2.2.3 A field study directed at a sample of industries in this area.

2.2.4 Analysis and collation of data, obtained, in the Department of Community Health.

A list of institutions, departments and individuals consulted is given in Appendix 1

The factories to which the questionnaires were sent out is given in Appendix 2

The area of study was the Durban Metropolitan area. (Appendix 3)

2.2.5 A literature review of the common occupational health problems and practises, dating as far back as 1966, was also conducted. It was conducted by the Institute for Medical Literature, Tygerburg through the MEDLARS system. The major studies are reviewed in Chapter 6.

CHAPTER 3

EXISTING LEGISLATIVE BASIS OF OCCUPATIONAL HEALTH

- 3.1 Introduction
- 3.2 Department of Health
- 3.3 Department of Labour
- 3.4 Department of Mines
- 3.5 Department of Agricultural Technical Services
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- 3.7 Scheduled and Offensive Trades Regulations in Durban
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3.1 INTRODUCTION

There are over a dozen government departments administering numerous Acts, all of which have some bearing on occupational health. Only the main departments involved, and the acts which they administer will be reviewed. (Appendix 6)

3.2 DEPARTMENT OF HEALTH

This department administers four acts which pertain to industrial health viz.:

- the Public Health Act of 1919
- Atmospheric Pollution Prevention Act
- Hazardous Substances Act
- Foodstuffs, Cosmetics and Disinfectants Act

The Public Health Act defines the functions of the Department of Health, wide enough to cover all human diseases and refers especially to "preventable diseases" including occupational diseases (section 3). It empowers the Minister to make regulations regarding the following matters: "the regulation and restriction of any trade or occupation entailing special danger to health,

whether from infectious disease or otherwise, and the institution of measures for preventing or limiting such danger, including the prohibition of the carrying on of any such trade or occupation except under licence." (section 36)

Atmospheric Pollution Prevention Act, Act 45 of 1965

This Act applies to bodies and industries excluded from the provisions of the Factories, Machinery and Building Work Act, which deals with registered factories.

A factory, as defined in Section 3 of the latter Act, does not include a mine or works as defined in Mines and Work Act (1956); premises which, in terms of the Explosive Act (1956) lie within a danger zone; and the S.A. Railways.

Section 6 (2) of the Atmospheric Pollution Prevention Act provides that the Minister of Health may authorise the Government Mining Engineer, Chief Inspector of Explosives, and any appointed Official of the Railways and Harbours, to exercise and perform the duties and functions of the Chief Air Pollution Control Officer, in their respective areas of jurisdiction. Likewise, Section 6 (5) of this act further provides that a competent person in the service of a local authority may be assigned some of the functions of the chief officer.

There are also similarities and overlap between the Atmospheric Pollution Prevention Act and Factories, Machinery and Building Work Act with respect to:

- powers, duties and functions of the empowered officials
- and provisions governing registration of factories

and of scheduled processes under the respective Acts.

Hazardous Substances Act, Act 15 of 1973

This Act, provides for the control of substances which may cause injury or ill health; and for the prohibition and control of the importation, manufacture, modification, drying etc. of such substances and products.

Section 29 (1) (e) provides as follows "The Minister may make regulations prescribing the precautions to be taken for the protection from injury, ill health or death of persons in control of or employed or engaged in the manufacture, operation, application or use of grouped hazardous substances or of any other person who is likely to or may be exposed to grouped hazardous substances as a result of the manufacture, operation, application, use, disposal or dumping thereof."

Section 29 (6) of this Act stipulates that no regulations framed under sub section (1) (e) relating to persons employed in the manufacture or use of any grouped hazardous substances in a factory as defined in Section 3 of the Factories, Machinery and Building Work Act, 1941, shall be made except after consultation with the Minister of Labour.

Foodstuffs, Cosmetics and Disinfectants Act,
Act 54 of 1972.

This Act deals with the sale, manufacture, and importation of foodstuffs, cosmetics and disinfectants.

The powers of inspectors under Section 11 of this Act and the Minister's authority under Section 15

to make regulations indicates possible overlapping of the powers of the health authorities and those of the Department of Labour in respect of registered factories in so far as the preparation or manufacture of foodstuffs, cosmetics and disinfectants by such factories is concerned.

3.3 DEPARTMENT OF LABOUR

This department administers five acts related to industrial and safety health viz.:

- Factories, Machinery and Building Works Act
- Workmen's Compensation Act
- The Shops and Offices Act
- Industrial Conciliation Act
- Wage Act
- Draft Bills

Factories, Machinery and Building Works Act

In this act no distinction is made between safety and health. It was only after 1967, when Chapter V A was inserted that provision for medical supervision was made. Chapter IV of the act deals with accidents; it appears from Section 31 that an occupational disease with certain consequences is regarded as an accident.

The protection of safety and health of workers is covered in Chapter V A.

The Minister may prohibit the use of certain substances or materials in any specific process, or in certain processes that may be "detrimental to the health or safety" of persons employed in registered factories. Section 39 A (2), declares activities which may endanger the "safety and health of workers", as specified activities requiring medical examinations of persons before

or during their engagement. Section 39 B provides for medical supervision in certain factories or premises. Sections 39 C and D provides for notifications of "prescribed industrial diseases" by medical practitioners to the employer, and then to the inspector, and for its investigation and taking of preventative measures.

Sections 51 stipulate that regulations dealing with the following may be made:

- cleanliness, safety and preservation of health including sanitation, ventilation and lighting
- facilities for employees in factories
- the structure of buildings to prevent fires
- the medical examination of persons
- working conditions and social welfare
- qualifications of medical practitioners employed in industry
- prescribed industrial diseases

The Workmen's Compensation Act, Act 30 of 1941

This Act, consolidates the laws relating to compensation for disablement and death resulting from accidents or deaths contracted by workmen in the course of their employment.

Section 3 of the Act defines the term "workmen" very widely, and includes any person working in a mine or works whether controlled or not to whom the Occupational Diseases in Mines and Works Act 1973, applies.

The second schedule to this Act lists 17 occupational diseases and Chapter X thereof provides for compensation to a workmen or his dependants in the event of his illness or death resulting from one of the said diseases. (Appendix 11).

Industrial Conciliation Act, 1956

Agreements which employers and employees reach under this Act, and which have to be approved by the Department of Labour, may contain measures for the protection of workers' health and safety.

Wage Act 1957

Wage determinations made under this Act sometimes includes provisions designed to protect workers against contact with hazardous substances.

Draft Bills

The following two draft bills, were published on 31 July 1981 by the Department of Manpower, for comment

- Conditions of Employment Bill
- Machinery and Occupational Safety Bill

These bills repeal the Shop and Offices Act and the Factories, Machinery and Building Works Act, in their entirety. Certain significant changes are proposed in these Draft Bills.

Conditions of Employment Bill

The following are some of the important changes:

The application of this Bill is much wider than the application of the Factories Act and includes all undertaking, industries, trades or occupations and shops and offices. The exclusion are farming, domestic service, state employees, mines and works and people undergoing training.

The rest of the Bill deals with:

- ordinary hours of work and overtime
- payment for overtime
- annual and paid sick leave
- prohibition of employment
- appointment and powers of inspectors
- records to be kept by employers

Machinery and Occupational Safety Bill

The purpose of the Bill is:

"To provide for the safe use of machinery;
to provide for precautions against accidents to
and disease of persons in connection with
employment;
to regulate the physical conditions under which
persons are required or permitted to work; and
to provide for incidental matters"

Both the definitions of employers and employees
and the application of the Bill has been widened,
and no longer only relates to factories. Now
only persons working for the Railways and Harbours,
mines and works and explosive factories are
excluded.

Both accidents and illnesses resulting from
conditions of work are now notifiable. General
duties of employers to their employees, "to
ensure so far^{as} is reasonably practicable, the
health, safety and welfare at work of all of his
employees" are laid down.

Likewise general duties of employees at work are
laid down.

The Minister may make regulations as to the
following:

- the measures to be taken and the facilities
and things to be provided to secure the
preservation of the health and safety of
employees
- the measures to be taken to secure tolerable
comfort conditions in the work environment,
and safe conditions for sight and hearing
- the measures to be taken to secure safe levels
of pollution of articles harmful to health in
the atmosphere
- protective clothing and equipment

These regulations may provide for the following:

- (a) that it shall be the duty of every employer to prepare and enforce a health and safety policy
- (b) for the appointment or election of safety representatives from amongst the employees
- (c) that it shall be the duty of every employer to consult with representatives with respect to making, maintaining and promoting health and safety policies.

3.4 DEPARTMENT OF MINES

The two main acts related to industrial health are:

- Mines and Works Act
- Occupational Diseases in Mines and Works Act

Mines and Works Act (Act 27 of 1956)

Section 2 of this Act provides for the establishment of a mine safety committee to advise the Government Mining Engineer on matters affecting the "safety or health" of persons employed at mines.

Section 12 of the Act empowers the State Presidents to make regulations to protect the safety, health and welfare of persons employed in or at mines or works.

The Occupational Diseases in Mines and Works Act (Act 78 of 1973)

This Act relates to the payment of compensation in respect of certain diseases contracted by persons employed in or in connection with, mines and works. Compensation is not payable to all workers but only to those workers who, subject to the occupational disease being a compensable disease (Section 1) contracted in risk work under Section 13 and generally contracted in a controlled mine or

works under Section 9 and 10.

The Act provides for:

- a Medical Bureau for Occupational Diseases to pay compensation
- the Risk Committee for Mines and Works to declare certain work to be risk work.
- the medical Certification Committee for Occupational Diseases to deal with certification of compensable diseases
- a Medical Reviewing Authority for Occupational Diseases
- determination of standards to be applied in the certification of compensable diseases
- support and establishment of institutions or organisations to protect the health of workers in mines and works.

3.5 DEPARTMENT OF AGRICULTURAL TECHNICAL SERVICES

There are 3 acts related to industrial health:

- Animal Diseases and Parasites Act
- Animal Slaughter, Meat and Animal Products Hygiene Act
- Fertilisers, Farm Feeds, Agricultural and Stock Remedies Act.

Animal Diseases and Parasites Act (Act 13 of 1956)

This Act consolidates the laws relating to animal diseases and parasites. It provides for the control of animals infected with disease, and for the movement of animals, parasites and infectious agents in the Republic.

Animal Slaughter, Meat and Animal Products Hygiene Act (Act 87 of 1967)

This Act provides for:

- the maintenance of proper standards of hygiene in the slaughtering of animals and the handling of meat and animal products

- the prevention of the transmission of diseases to humans and animals by diseased or infected animals, meat or animal products
- the control of the importation of certain meat
- and for the appointment of the Chief Meat Hygiene Officer

Fertilisers, Farm Feeds Agricultural and Stock Remedies Act (Act 36 of 1947)

This act provides for the registration, transportation and sale of fertilisers, farm feeds, agricultural and stock remedies.

3.6 DEPARTMENT OF COMMUNITY DEVELOPMENT

Slums Act (Act 53 of 1934)

This act empowers local authorities to prevent nuisances in its district and to ensure the provision of suitable housing for the inhabitants of its district.

3.7 SCHEDULED AND OFFENSIVE TRADES REGULATIONS IN DURBAN

The Durban municipality has a set of bylaws promulgated in terms of the Offensive Trades Regulations; applicable to the whole of Natal. In addition to these bylaws, Durban also has a set of Scheduled Trades and Occupations Bylaws, which are presently being used only in Durban. The latter bylaws cover a much broader range of trades and occupation than the former. A 'Code of Practice', containing the method used by the Medical Officer of Health to control and regulate such trades, and a list of scheduled trades and occupations is included in the Appendix 4,5.

This list includes hazardous substances (as defined in the Hazardous Substances Act) and Offensive Trades (as defined in the Licences and Business Hours Ordinance)

3.8 SUMMARY OF EXISTING LEGISLATION

The existing legislation to occupational health is summarised in Appendix 6

With respect to this legislation the authoritative Commission of Enquiry on Occupational Health concluded that:

- (1) there are about a dozen Government departments that have a material concern in industrial health matters, with overlapping functions.
- (2) the powers, duties and functions of the different inspectors in the various Government departments also overlap.
- (3) There were overlapping industrial health duties in laws administered by the same department or in the same act.
- (4) inspectors and officers concerned are not required to have the same qualifications and attributes, when involved in industrial health work, resulting in confusion.

CHAPTER 4

A REVIEW OF THE REPORT OF THE COMMISSION OF ENQUIRY
ON OCCUPATIONAL HEALTH

- 4.1 Terms of Reference and Definitions
- 4.2 Deficiencies in Existing Legislation and Facilities
- 4.3 Industrial Health Hazards at the place of work and the public
- 4.4 Department of Health and its role in Industrial Health
- 4.5 Industrial Health Personnel
- 4.6 Summary and Main Recommendations

4.1 TERMS OF REFERENCE AND DEFINITIONS

A commission of inquiry into industrial health was appointed in 1974 by the Minister of Health, under the chairmanship of Judge Erasmus. Its terms of reference were:

"To inquire into, consider and report upon:

- (a) the nature, incidence, extent and effect of occupational diseases in the Republic;
- (b) the extent to which existing statutory measures and existing facilities may be wanting or overlapping with reference to the effective protection of industrial and other production workers;
- (c) the necessity and availability of the different categories of trained persons who may be needed to insure a fully-fledged preventive and promotive health service for workers;
- (d) measures which should be taken for the efficacious protection of the public against dangers other than environmental pollution, which arise from industrial activities and
- (e) other related matters"

In its interpretation of these terms, the Commission, considered the definition given by the World Health Organisation (WHO) of the objects of industrial health, viz.:

- the promotion and maintenance of the highest degree of physical, mental and social well being of workers in all occupations;
- the prevention among workers of departures from health caused by their working conditions;
- the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological condition;

The Commission defined occupational disease:

"as a disease peculiar to a particular industry or occupation as a result of particular working conditions and factors."

In the light of this definition accidents were excluded from the inquiry.

In addition compensation of industrial diseases was also excluded.

4.2 DEFICIENCIES IN THE EXISTING LEGISLATION AND FACILITIES

The Commission examined the various acts pertaining to industrial health and the different departments responsible for implementing them. As stated above, it found a considerable measure of overlapping of responsibilities in the field of industrial health resulting in confusion.

It identified the following deficiencies in existing industrial health legislation and facilities:

4.2.1 Deficiencies in statutes:

- 4.2.1.1 the provisions of the Public Health Act are too general and have not been properly applied

- 4.2.1.2 there is a need for a single Act
- 4.2.1.3 the legislation does not differentiate between occupational diseases and accidents
- 4.2.1.4 mandatory prescriptions regarding industrial health officers are minimal
- 4.2.1.5 the legislation is not comprehensive enough
- 4.2.1.6 workers doing the same work enjoy different cover under existing legislation because of artificial definitions and provisions
- 4.2.2 Deficiencies in existing facilities both in terms of industrial health personnel and physical facilities in factories.

4.3 INDUSTRIAL HEALTH HAZARDS AT THE PLACE OF WORK AND THE PUBLIC

With respect to industrial health at the place of work, the main points to emerge from the Commissions' outline are that:

- the spectrum of industrial diseases in this country are as wide as in any other Western country, although the incidence of occupational diseases is not known, due to lack of statistics;
- employees and employers are not really conscious of occupational diseases yet;
- there is a lack of organisation and a shortage in industry of persons whose sole function is the prevention of occupational diseases.

The commission identified the following responsibilities of management, with respect to industrial health at the place of work:

- the prevention of occupational diseases and for industrial health in general

- source and environmental health control
- medical welfare services
- pre-employment and other welfare services
- suitable and health working conditions
- provisions of industrial health equipment
- marking off danger zones on the workshop floor
- education of itself and its workers
- drawing up a health policy
- appointment of health staff in sufficient numbers

The Commission felt that the co-operation and involvement of workers must be enlisted, through the establishment, by both of, joint committees for the periodic discussion of industrial health and safety matters. It felt that the organisation that is created, should be capable of discharging the legal obligation which the Commission proposes to impose upon employers, namely that of consulting their workers on industrial health matters.

In considering the effects of industrial health hazards upon the public, the Commission recommends that the authority responsible for industrial health be empowered by law to make regulations in terms of which industrialists will be liable not only for the protection of the health of workers, but also for that of the general public in cases where there is reason to believe that their health may be adversely affected by industrial or commercial processes.

4.4 DEPARTMENT OF HEALTH AND ITS ROLE IN INDUSTRIAL HEALTH

The Commission recommended that industrial health be placed under a single body, and that the Department of Health should be vested with overall

control. This department as the proposed central industrial health body, is to work with other departments, local authorities and boards for the promotion of industrial health, but as the body with overall control it should have operational autonomy and be capable of discharging certain special functions. These are as follows:

- 4.4.1 Advisory Services on industrial health;
- 4.4.2 Creation and administration of a unified industrial health inspectorate;
- 4.4.3 The review and administration of occupational health legislation;
- 4.4.4 The determination and formulation of maximum threshold limit values and standards
- 4.4.5 The promotion and co-ordination of industrial health research, information and training;
- 4.4.6 Co-operation with other organisations;
- 4.4.7 The provision and creation of improved industrial health facilities especially for agricultural and forestry workers.

To fulfill these functions, the Commission recommends that the Department of Health be modified.

Three new branches should be created viz.

Industrial Health Inspectorate Branch, a Legal Advisory Services Branch and an Industrial Health Development Branch in which the National Research Institute for Occupational Diseases (NRIOD) is to be incorporated. The Personal Health Services Branch should be made responsible for arrangements for the treatment and rehabilitation of temporarily incapacitated workers and for matters pertaining to conventional hygiene. The Laboratory Services Branch should take the additional

function of extending analytical services to industry. A new subdivision, to be known as the Agricultural and Forestry Industrial Health Services Subdivision should be established under the Consumer Goods Division. The new arrangement is shown in the organisational plan (Appendix 7) the new branches and services are indicated in boxes.

4.5 INDUSTRIAL HEALTH PERSONNEL

The Commission found that the main categories of persons among the health staff in industry were, first aid assistants, safety officers, nurses and general practitioners. The majority of them had no training in industrial health and their work was mainly curative.

The Commission recommended that the following categories of health staff be employed according to the size of the work-force.

- 4.5.1 Safety Officers - every industry must employ a safety officer, if there are 100 or more workers.
- 4.5.2 Industrial health nurses (male or female) industries with 50 workers or more must employ an industrial health nurse in the proportion of one nurse for every 1 000 workers or part of that number. In the case of handling hazardous substances, the proportion shall be one nurse to every 500 workers or part of that number.
- 4.5.3 Industrial hygienists (technical) - industries with 500 workers or more must also employ a technical industrial hygienists for every 300 workers in their employ.
- 4.5.4 Professional industrial hygienists - industries with more than 1 000 workers, must employ professional industrial hygienists in the proportion of one hygienist for every 10 000

workers or part thereof.

- 4.5.5 Industrial medical officers - an industry with 10 or more industrial health nurses, must also employ at least one full-time medical officer. Where less than 10 nurses are employed, part time medical officers will suffice.

After noting the almost total lack of trained staff in the above categories, the Commission examined various aspects of training such staff.

4.6 SUMMARY AND MAIN RECOMMENDATIONS

The Commissions' main recommendations are that:

- 4.6.1 Overall control over industrial health be vested in a single central body, which should be the Department of Health.
- 4.6.2 A single Industrial Health Act be passed, to provide uniform industrial health policy for the whole of the country to protect all industrial workers against occupational diseases.
- 4.6.3 The Department of Health should function as a Central Industrial Health Administration.
- 4.6.4 The industrial health work be divided as indicated above.
- 4.6.5 The NRIOD and radiation control be incorporated in the Department of Health.
- 4.6.6 The responsibilities of management in preventing occupational diseases be clearly assigned and legislated.
- 4.6.7 Industrial health control could be mediated through local authorities.
- 4.6.8 Consideration be given to training of the industrial health staff mentioned above.
- 4.6.9 The bodies exercising direct control over industrial health should have certain powers

of enforcement and be able to apply administrative sanctions, wherever necessary.

In summary the main implications of this report are that:

- all industrial workers will be covered.
- uniformity of policy and action will be achieved
- workers will be consulted about working conditions in industry.
- industrial health services will be compulsory.
- a great saving in trained staff and money.
- overall control with direct control offers a practical system.
- the majority of workers exposed to occupational diseases will be under the direct control of the Department of Health.
- the recommendations fit in as far as possible with existing legislation.

CHAPTER 5

REVIEW OF COMMON OCCUPATIONAL DISEASES

- 5.1 Pneumoconiosis
- 5.2 Occupational Diseases caused by Chemicals and Gases
- 5.3 Occupational Diseases resulting from Industrial Metals
- 5.4 Occupational Diseases resulting from Physical and Biological Factors
- 5.5 Other Occupational Health Problems
- 5.6 Summary

"It is difficult to give a clear picture of the incidence of any occupational disease in the Republic because this would require reliable statistical data. The lack of statistic is responsible for the fact that priorities with regard to the health of the worker do not receive the attention they should." (Erasmus Commission of Enquiry) ⁽³⁾

Both a central system of notification, collection and collation of occupational injuries and illnesses as well as reliable statistical data are needed to develop these profiles in industry. What follows is a brief outline of some of the common occupational health problems in the Republic identified by the Commission. No data exists for Durban.

5.1 PNEUMOCONIOSIS

By definition "pneumoconiosis means a permanent lesion, excluding a calcified lesion, of the cardio-respiratory organs caused by the inhalation of dust in the course of performance of risk work" (4,5)

It affects workers in the mines, quarries, sand blasting works, foundries and the pottery industries. It is thought that as many as 25% of the workers exposed to dust suffer from pneumoconiosis. The common types in S. Africa are silicosis (silica dust), asbestosis (asbestos particles) and anthracosis (coal dust).

Silicosis is a pneumoconiosis caused by the inhalation of small particles of silicon dioxide (silica) in its free form. Its incidence is high amongst Black miners and there is a positive association with tuberculosis. With moderate exposure, workers may be protected by improving ventilation and using wet techniques. (6,7)

Asbestosis occurs both in asbestos mines (in the Cape) and in industries where asbestos is handled. As there are over 3 000 uses for asbestos, many workers are potentially exposed. The Erasmus Commission, in its investigation, found a high incidence of asbestosis in the asbestos-cement industry, and an alarmingly high incidence of mesotheliomas! (3,8)

Anthracosis occurs in coal miners, gold miners and in production workers in non-mining industries.

Bagassosis and byssinosis occurs among workers engaged in the processing of sugar-cane and cotton respectively. Its incidence is unknown.

In its report for the period January 1976 to March 1977, the National Research Institute for Occupational Diseases (NRIOD), mentioned that 33 cases of asbestosis and 22 cases of silicosis had occurred; i.e. more than 50 cases of pneumoconiosis occurred in industry in one year. (9)

5.2 OCCUPATIONAL DISEASE CAUSED BY CHEMICALS AND GASES

The chemicals or hazards in S. Africa and their effects on workers is summarised in the following table:

TABLE I

LIST OF HAZARDS AND THEIR EFFECTS ON WORKERS

<u>CHEMICALS/HAZARDS</u>	<u>EFFECTS</u>
Soft coal burning, iron and steel industries, gas plants.	Carbon monoxide poisoning
Respiratory	
Sulphur dioxide, nitrogen oxides, chlorine, ammonia, acrolein, alkaline mists.	Chronic ^{obstructive} Obsructuse lung disease
Industrial solvents:	
Benezene	Anaemia
Carbon tetrachloride	Liver and renal damage
Carbon disulphide	C.N.S. and heart disease, skin irritation
Organic and vegetable dusts:	
Flax, Lemp, jute, coconut fibres, rice germ, bagasse, tobacco, tea, cocoa, paprika and wood.	Allergic symptoms
Mineral oils, cement, industrial solvents	Occupational dermatitis
Asbestos, nickel, arsenic, coal tar products, P.V.C.	Occupational cancer
Ozone	Chronic bronchitis and bronchiolitis
Chlorinated carbohydrates	Sensitivity reactions
Naphthylamine	Cataracts

5.3 OCCUPATIONAL DISEASES RESULTING FROM INDUSTRIAL METALS

Up to 45 industrial metals have toxic effects on man. Of these, the Erasmus Commission found 10 metals in S. African industry to be important viz. lead, manganese, iron, platinum, chromium, vanadium, mercury, aluminium, cadmium and zinc.

5.3.1 Lead

Lead poisoning in industry usually results from inhalation of lead fumes or dust containing lead. In the different industries, workers are exposed to lead in over 116 occupations. The following table reflects the magnitude of the problem.

TABLE II

ESTIMATED NUMBER OF WORKERS EXPOSED TO LEAD OR LEAD COMPOUNDS (1974) (3)

INDUSTRIES	NO. OF FACTORIES	NO. OF WORKERS	NO. EXPOSED (ESTIMATED)
Lead Acid Battery Factories	27	2 195	1 975
Diamond cutting and polishing works	49	1 960	196
Printing Works	801	35 596	3 364
Bulb Factories	23	1 707	341
Jewellery etc.	115	1 641	410
Electric Cable Factories	18	6 620	1 324
Plumbing works	406	14 790	1 479
Lead refineries, smelters etc.	15	768	768
Panel beating and lead wiping works	820	13 311	1 331
Glazed pottery	35	3 059	459
Rubber goods, pipes	12	4 344	434
Sanitary ware factory	3	1 072	154
Shipbuilding and repair yards	10	5 177	1 031
Glazed tile factories	12	1 870	280
Paint factories	104	5 688	1 137
Motor Vehicle manufacture and assembly	45	35 869	1 793
Total	2 495	133 030	14 501

The number of cases of lead poisoning notified to the Department of Health, has increased since 1972. In comparing the data collected in the Republic in respect of lead workers and applying the regulations governing maximum statutory levels of lead absorption as used in other countries, the Commission made the following observation:

"If these workers (S.A.) had been working in Sweden, 45,6% of them would have had to be withdrawn because, they would have been considered to have had an overdose of lead, and in the U.S.A. and England these percentages would have been 44,1% and 26,1% respectively. In the Republic of South Africa, on the other hand, only 3,2% have been withdrawn. Exposure in the Republic is so inordinately high that, if the factories on which investigations were carried out had been situated in the U.S.A. or Sweden, they would have had to close."

5.3.2 Manganese

Manganese has a variety of uses in over 34 different occupations, so that the number of potentially exposed workers is considerable. The following table III reflects the number of mines and factories involved and the numbers of workers exposed.

TABLE III

NUMBERS OF MINES AND FACTORIES INVOLVED WITH
MANGANESE AND WORKERS EXPOSED

OCCUPATION	NO. OF MINES/ FACTORIES	NO. OF WORKERS
Manganese ore mines	17 mines	5 160
Ferromanganese works	5 works	1 806
Battery factories	31	5 677
Brickworks	301	32 624
Explosives and Fireworks	5	4 577
Match factories	6	1 212
Glass factories	196	12 240
Rubber factories	406	24 842
Paint factories	<u>104</u>	<u>5 688</u>
Total	<u>1 011</u>	<u>89 826</u>

The Commission summed up the position regarding manganese as follows:

"The fact that superficial investigations have revealed the existence of all three of these diseases (manganism, pneumonia and chronic bronchitis) resulting from manganese exposure indicates that the problem is of considerable magnitude and that a thorough-going study and control of the industry are long overdue."

5.3.3 Platinum

Platinum salts, cause a syndrome known as platinosis, which is characterised by respiratory tract inflammation, allergic dermatitis and bronchial asthma. There are at least 16 occupations in which workers are exposed to platinosis including platinum refineries, glass factories, ceramics factories and chemical laboratories. The Commission found that 27% of workers in platinum refineries had platinosis.

5.3.4 Iron

Iron is produced extensively in this country in over 16 mines and 7 works. As an inert material, it is one of the metals producing "benign pneumoconiosis" (10,11), i.e. having radiological changes but no symptoms. No compulsory threshold limit values exists for iron.

5.3.5 Chromium

Chrome exposure produces dermatitis, skin ulcers (chrome ulcers), nasal septal perforation, conjunctivitis, asthma and possibly bronchogenic carcinoma. It is used in the steel industry, electroplating works, in tanning, timber preservation, wool industry and in the lead industry. The Commission identified at least 102 occupations in which workers are exposed to chrome, including chrome mines and lead workers, i.e. altogether 2 145 factories with 165 777 workers. In its investigations into the industry, the Commission found extremely disturbing findings indicating "a lack of concern regarding the physical welfare of the workers in the past and a disregard for the conditions under which the Offensive Trade Regulations permit was granted." (3)

5.3.6 Vanadium

Vanadium affects the respiratory, central and renal systems and may possibly cause bronchogenic carcinoma. Workers who may be exposed to vanadium are found in 17 different occupations, including ceramic factories, petroleum refineries, glass factories and vanadium smelters. The Commission considered that vanadium was one of the

few metals on whose toxicology basic research, including applied research, was needed.

5.3.7 Mercury

Certain mercury compounds are skin irritants, while inhalation of the fumes or dust of mercury compounds has effects on the respiratory and central nervous systems. There are over 55 occupations in which exposure could occur, including leather tanneries, paint factories, potteries, agricultural remedy factories, basic chemicals factories and factories in which mercury containing lamps are produced. A total of 71 factories with 77 132 workers are identified.

5.4 OCCUPATIONAL DISEASES RESULTING FROM PHYSICAL AND BIOLOGICAL FACTORS

Important physical factors are radiation (ionising and non-ionising), noise, excessive heat and insecticide poisoning; while the main biological factors are the zoonotic diseases affecting agricultural and forestry workers.

Radiation sources constituting potential radiation hazards include atomic installations, X ray machines, uranium mines and works and other equipment using radio-active substances.

Atomic installations are controlled and monitored by the Atomic Energy Board (AEB) while electronic apparatuses emanating X rays are controlled by the Department of Health. The Commission found that preventive measures aimed at limiting exposure to radiation were effective for the former group of workers while in the latter group of about 10 000 registered radiation workers conditions

were less satisfactory.

Little is known of the harmful effects of non-ionising radiation such as micro-waves, infra-red and ultra-violet radiations, which would require careful monitoring and study.

Exposure to industrial noise, exceeding 85 dB (A), sustained for 8 hours or more a day (SABS code of Practise) could result in noise induced deafness. Most industries have such areas, and the Commission estimated that at least 15% of all workers work in such noise zones.

Excessive heat exposure may cause dermatitis, dehydration, heat exhaustion or heat stroke. It is a problem amongst infantrymen, miners, furnace and foundry workers; the Commission estimated that 300 000 people are potentially exposed to heat.

Insecticide poisoning affects a potential 2,5 million agricultural workers, and also factory workers handling pesticides and agricultural products. The commonest type is organophosphate poisoning. This is a notifiable condition since 1951.

The important zoonoses are listed in the Table below. According to the Commission, "a convincing case can be made out for the designation of these diseases as occupational diseases, particularly in the case of veterinarians, stock inspectors, farmers and farm workers".

TABLE IV

LIST OF ZOONOTIC DISEASES IN SOUTH AFRICA(DEPARTMENT OF AGRICULTURAL TECHNICAL SERVICES 1975)

Anthrax	Brucellosis	Leptospirosis
Glanders	Tularaemia	Erysipelis
Enterobacterial infection	Psittacosis	Rift Valley Fever
Wesselbron disease	Vesicular stomatitis	Foot and mouth disease
Newcastle disease	Herpes Virus infection	Marburg virus infection
Variolar virus	Cat Scratch Disease	Lymphocytic chorio meningitis
Toxoplasmosis	Leishmaniasis	Malaria
Trypanosomiasis	Q fever	Other rickettsioses
Flea borne typhus	Tick bite fever	Ringworms
Histoplasmosis	Blastomycosis	Aspergillosis
Mucormycosis	Candidiasis	Cryptococcosis
Trichinosis	E. granulosus infections	Tuberculosis
Listeriosis	Rabies	

5.5 OTHER OCCUPATIONAL HEALTH PROBLEMS

The above approach has been largely aetiological and clinical, focussing on specific occupational diseases. There is a whole group of stress related morbidity and mortality, on which little research has been done. Stresses could be generated from many sources including, the nature and type of work, the quality of the relationship between worker and employer and the extent of adaptation of rural persons to an urban, industrial environment. (2, 10, 12, 13)

Likewise, these stress related conditions manifest themselves in many ways e.g. high rates of

absenteeism, alcoholism, degenerative conditions like ischaemic heart disease and hypertension amongst executives and workers and in social welfare problems. Often the magnitude of these problems and its effects on productivity, is greater than that due to specific industrial hazards. Hence the approach of many factory doctors, is orientated towards alleviating these kinds of problems, resulting in a "sickness parade" type of occupational health services.

5.6 SUMMARY

The following are some of the areas requiring further attention and research:

- 5.6.1 The current approach to occupational health problems needs to evolve into a more comprehensive epidemiological approach. The latter would be one which attempts to identify as many factors as possible, which are producing illhealth and then attempt to intervene at several of these levels to prevent them.
- 5.6.2 Following from this, the present focus on overt ill health needs to be expanded to include a system of detecting and monitoring pre-symptomatic deviations from the normal in that given context.
- 5.6.3 The implementation of such a system, could make a significant contribution towards an understanding of the morbidity and mortality generated by other occupational factors. The effects of stress related factors; the effects of inadequate working conditions like ventilation, lighting, lack of prompt first aid for injuries at work; and the effects of exposure to low doses of potential carcinogens are largely unknown and require further study. Similarly, health problems

of agricultural and domestic workers, should receive priority attention.

- 5.6.4 An occupational health service, which is effective in meeting the priority health problems of the workers and optimally directs resources towards a comprehensive health service, could evolve at the factory, regional and national levels.

CHAPTER 6

CURRENT STATUS OF OCCUPATIONAL HEALTH

- 6.1 Profile of Industries in Durban
- 6.2 Occupational Health: Services and Workers Health Status
- 6.3 Summary

6.1 INDUSTRIES IN DURBAN

A profile of the types and geographical distribution of industries in the Durban Metropolitan Area, was difficult to obtain for the following reasons:

Firstly, no single authority exists to monitor and control all industries. The Department of Manpower Utilization (Labour), has jurisdiction in the Durban magisterial district over factories and over Shops and Offices as defined in their respective acts. The Durban Municipal Health Department has jurisdiction in the Durban municipal area over premises licenced in terms of the Scheduled Trades and Occupations By-laws, including quarries which fall under the Department of Mines.

Secondly, the areas of jurisdiction range from municipal areas to magisterial districts. While at present no overall co-ordinating authority exists to render services in the larger Durban Metropolitan Area (see Map); the Durban Metropolitan Consultative Committee (DMCC) is attempting to establish such a body.

TABLE V

LIST OF INDUSTRIES IN DURBAN BY NUMBER OF FACTORIES
AND WORKERS (Department of Manpower Utilization - 1980)

TRADE	NO. OF FACTORIES	NO. OF WORKERS
Slaughter, Preparation and Preservation of Foods	382 (6,9%)	44 150 (11,8%)
Textiles	497 (9%)	93 270 (25%)
Leather and Rubber	197 (3,6%)	23 626 (6,2%)
Timber, Wood and Cane	481 (8,7%)	21 981 (5,9%)
Printing and Paper	214 (3,6%)	22 469 (5,9%)
Chemicals and Petroleum	504 (9,0%)	43 820 (11,6%)
Metals	2 788 (50,2%)	112 611 (29,7%)
Miscellaneous	493 (9,0%)	16 935 (4,5%)
TOTAL	5 556	378 864

6.1.1 FACTORIES

At the end of 1980 there were a total of 5 556 factories employing 378 864 workers in the Durban magisterial district. The list of industries by number of factories and number of workers is shown in Table V. This only includes factories, premises and/or industries as defined in the Factories, Machinery and Building Works Act; and excludes mining, agriculture, docks, shops and offices. The Department of Manpower Utilization does not have statistics on shops and offices.

The distribution of factory workers in Durban by race and sex (Table VI), shows that the bulk of the workforce is black (87%) and male (76,7%).

TABLE VI

DISTRIBUTION OF FACTORY WORKERS IN DURBAN BY RACE
AND SEX (1980)

RACE	SEX		TOTAL
	MALES	FEMALES	
BLACKS	177 098	39 869	216 967 (57,3%)
ASIANS	67 172	33 353	100 525 (26,5%)
WHITES	39 703	10 706	50 409 (13,3%)
COLOUREDS	6 656	4 308	10 964 (2,9%)
TOTAL	290 629 (76,7%)	88 235 (23,3%)	378 864

6.1.2 SCHEDULED TRADES AND OCCUPATION

There are 371 scheduled trades and occupations in the Durban municipal area, registered in terms of the Scheduled Trades and Occupations By-laws (2 September 1981).

Their distribution according to zones is as follows:

- Northern Zone (north of the Umgeni River) - 64
- Central Zone (between Umgeni and Umbilo Rivers) - 139
- Southern Zone (south of the Umbilo River) - 168

Their number and distribution according to type of trade is shown in Appendix 5.

Control and monitoring of these trades and occupations is through a series of permit conditions. After the passing of these by-laws (March 1979), all new scheduled trades and occupations are required to register with the City Health Department. At the time of registration, permit conditions are laid down; compliance with these conditions is monitored by annual visits by the health inspectors. The permit conditions in respect of Chrome Chemicals and Associated Lead Manufacturers (Appendix 8,9), covers aspects such as conditions of the working environment, personal protective measures, waste disposal and medical supervision and types of examinations.

6.1.3 MINES AND WORKS

There are no mines in Durban, but approximately nine quarries.

6.2 OCCUPATIONAL HEALTH: SERVICES AND WORKERS' HEALTH STATUS

A small field study conducted by the author, as well as other recent studies elsewhere are reviewed and their findings discussed.

6.2.1 PURPOSE OF STUDY

The lack of information on the actual practise of occupational health at the work place has been indicated above and commented upon by others (1,3,10). A study was undertaken to obtain information on certain aspects of occupational health practises.

6.2.2 METHOD

The study was limited to a small sample of 10 industries in the Durban Metropolitan Area (Appendix 3). A standardised letter of introduction explaining the purpose of the study, together with a questionnaire was posted to them. (Appendix 10). No control group was considered necessary.

Aspects covered in the questionnaire included: size and type of work force, occupational health facilities and personnel available; the quality of the service, health and safety problems and attitude of workers to the service.

6.2.3 RESULTS

6.2.3.1 Size and Type of Workforce

The distribution of the workforce according to industry is shown in Appendix 2. Of the total workforce of 14 245 the majority were African males.

6.2.3.2 Occupational Health Facilities and Personnel Available

This showed that the majority of industries (80%) utilized first aid services and the services of full time nurses with either part-time or full-time doctors; all based in a clinic. Over half the industries utilized safety officers (7) while a few employed industrial hygienists (3).

6.2.3.3 Components of Services Available

The majority (90%) provided curative services mainly for minor ailments, about half provided services for chronic conditions, while a few provided rehabilitative services.

6.2.3.4 Quality of Services

All the industries in the sample provided medical aid schemes, but this was limited to the administrative and executive personnel. Most of them had health and safety committees with medical and nursing staff representation.

Examinations commonly done included, pre-employment screening, regular checks, screening for chronic conditions, but few conducted annual physical examinations. It was interesting to note that at least 6 industries had executive health programmes.

All of the industries interviewed provided health and safety education either on a weekly or monthly basis by their own staff or NOSA and City Health Department Staff. Likewise, family planning services were available in the majority of cases.

6.2.3.5 Other Services Available

These included pension schemes (10), catering facilities (8), housing (5) and recreational facilities (4).

6.2.3.6 Hazards, Diseases and Protection at Work

Exposure to the following hazards occurred at the workplace: noise (8), dust (6), gases and chemicals (6), excessive heat (4).

Protective clothing and equipment was provided in most cases and included, overalls, ear muffs, goggles, protective foot wear and safety hats.

Visits by the factory's inspector ranged from once a month to once a year. The main occupational health problems identified by the

health service included, dermatitis, infections such as athletes foot and upper respiratory tract infections, metal absorption, hand and foot injuries, noise and burn injuries and post-traumatic sepsis.

6.2.3.7 Attitude of Workers to the Services

Most of the responses indicated that the workers accept the services, but in some cases reservations were expressed.

6.2.4 DISCUSSION

Although the study covered a range of industries it was not representative of all the industries in this area nor was the sample large. Therefore the above results can only be regarded as rough indicators of the prevailing situation, pending the carrying out of a proper survey consisting of a representative sample from industry. Also, since this study was carried out amongst the larger industries, who do have health services, its findings cannot be applicable to the large number of small industries who have little or no services for their workers. The main findings of this study are that:

- the services are rendered mainly by sisters in factory clinics with some assistance from general medical practitioners.
- the services are mainly curative, and geared towards handling day to day problems.
- the services at the factory cater mainly for the labourers and semi-skilled workers, while the upper echelons of administration and management staff have access to more sophisticated health service through medical aid schemes.

- the conditions seen and treated by the sisters are mainly those which would bring about short term improvements in productivity.
- there appears to be little or no participation from workers in the planning or implementation of these services.
- there is limited liasion with other health and related services like hospitals, family doctors and social welfare agencies.
- there is no sharing or co-ordination of services provided within industries or between factories.

These results are further emphasised in a study conducted by Sister Grainger from the Natal Occupational Health Nurses' Discussion Group. The results of the latter study were presented in a paper by Miss Hunt of the Department of Nursing at a symposium entitled "Total Health Care for the Industrial Worker", (July 1981) Twenty seven occupational health nurses interviewed in 26 factories in Durban, worked approximately a 1 000 hours per week amongst them. There were doctors employed by 21 factories, all of whom were on a part-time basis. When asked about their most pressing educational needs, 21 out of 27 requested instruction in diagnostic skills, while notable absences were health educational and preventive health skills. (14)

A national postal survey of Occupational Health Nurses (1978) involving 149 persons, revealed that 85% were employed full time while only 17,4% had one or more full time medical officer available and 62,4% had part-time medical officers available (15).

An extensive survey of 60 industries to establish and evaluate their industrial health status, with the objective of improving the health of the workers was conducted by the Industrial Council for the Transvaal Chemical Manufacturing Industry (2). The survey examined the available Occupational Health Services in this industry and conducted a medical screening of its employees.

To evaluate the available health services and to investigate the possibility of introducing some form of preventive medical care, it was decided to identify the factors influencing environmental and personal health.

Possible environmental health hazards identified included excessive noise, dust and toxic metals. With respect to the physical health of the workers, both direct and indirect measures to promote workers health were examined. The findings of the direct measures to promote health were as follows:

"In view of the high noise levels noted in 23 of the factories visited and the exposure of certain workers to potentially hazardous chemical substances because of poor ventilation in 12 factories; it was disturbing to note that specialised items of protective clothing were issued to 'at risk' workers in only 12 industries.

Twenty four factories subsidised and provided meals. To increase productivity, 5 industries made food available to their employees before they commenced work.

Toilet and ablution facilities were provided in

all but one case, but were supervised in only 28 instances. In all other cases, they were found to be dirty and a potential source of contamination. Recreation and entertainment did not receive any attention, except in a very small minority of cases" (2).

When looking at indirect measures to promote health, the study found that, "very little was done to promote communication between employers and employees." Only 15 industries (25%) were not opposed to offering sheltered employment to employees who became chronically ill or disabled. Of the 60 factories visited, only 4 thought it necessary to retain the services of part-time medical officers and only 5 employed industrial health nurses. Pre-employment medical examinations, were undertaken by 11 employers at their own expense, while periodic health screening of production staff for the presence of transmissible disease was undertaken by 13 industries. Only 1 factory felt the need to offer family planning services for its female employees. Health education was undertaken in a somewhat cursory manner by industrial health nurses where they were employed.

Medical screening of a total of 6 011 persons was undertaken, the results are shown in Table VI and Table VII. About 12% of members were positive for venereal disease, while between 4% to 8% had elevated diastolic blood pressures.

TABLE VIIFINDINGS ARISING OUT OF MEDICAL EXAMINATIONS

	NUMBER	%
History of previous operations, injuries, major illnesses	2 350	39,09
History of previous occupational disease or injury	430	7,15
Patients on treatment	679	11,29
Patients referred for investigation	299	4,97
Patients put onto treatment	1 732	28,81

TABLE VIIIDISEASES RECORDED AT MEDICAL EXAMINATIONS

	NUMBER	%
Teeth	561	9,35
Obesity	542	9,01
Eyes	402	6,68
Skin	246	4,09
Extremities	159	2,64
Ears, nose, throat	119	1,97
Genital system	108	1,79
Heart	99	1,64
Lungs	95	1,58
Other	443	7,36

The results of the survey revealed that very little occupational health care was available for the workers. It was concluded that very basic preventive health benefits should be introduced, and a health education programme was initiated. The study further concluded that "the creation of a medical organisation capable of follow-up is essential. The

establishment of an occupational health centre under the control of a medical director supported by suitably qualified industrial nursing staff, radiographers and physiotherapists could serve this purpose. From this centre a variety of occupational health services would be available. The industries served by such a centre would contribute to the initial capital costs and later pay for specific services rendered, on an itemised basis. It would be more practical if a large number of industries in a particular geographical industrial area were to join together in the establishment of an occupational health centre, irrespective of the nature of their manufacturing processes." (2)

A workshop conference entitled "The Role of the Occupational Health Nurse (O.H.N.) in S.A.", held under the auspices of the Division of Continuing Medical Education, University of Witwatersrand, identified the factors which prevent the O.H.N. from achieving her full potential (1):

1. Issues relating to inadequate training and continuing education of the O.H.N.
2. Factors relating to management including insufficient expenditure, ignorance, apathy and organisational factors.
3. Relationships between the OHN and workers, including inadequate communication and resistance to occupational health programmes.
4. Issues relating to the work relationship between OHN's and occupational medical officers, especially the issue of part-time general practitioners working in industry who "always appear to be short of time when visiting the company" (1).

5. Issues relating to remuneration and motivation.
6. Government policy, including lack of recognition of occupational health nursing by statutory bodies and lack of implementation of the recommendations of the Erasmus Commission.

6.3 SUMMARY

The above studies on the current status of occupational health with respect to health services and workers' health status, and the views of the various bodies mentioned clearly indicates that the position has changed little from that described by the Erasmus Commission.

Likewise, at the Economics of Health Care conference at the University of Cape Town (September 1978), several papers on occupational health and safety focussed on the need for improvement (7).

Various trade union groups have also made recommendations on how to improve workers health (26, 27). An industrial health care system based on the principle that workers should increasingly assume responsibility for their own health and safety and that unions should introduce and use health care systems to strengthen their organisations, has been proposed (26). The system is based on elected factory health workers (at factory level) as members of a health and safety committee. They would primarily be responsible for the health and safety needs of the workers within their own factory. Their training would include first aid, identification of common industrial diseases, keeping of records and referrals to the next level in the system, the trade union health clinic consisting of health workers, nurses and doctors. The doctors role

in such a clinic would include diagnosis and treatment, training of factory health workers, and research into occupational diseases and accidents. Such a clinic has recently been established in the food industry in Paarl (28).

Institutes such as the Health Care Trust (Cape Town) and the Industrial Health Research Unit (Univ. of Cape Town) are fulfilling a vital role by conducting studies on occupational health and safety. (27, 29, 30, 31).

CHAPTER 7

DISCUSSION AND RECOMMENDATIONS

The theory and practise of Occupational Health in S. Africa reflects a mixture of pioneering work in some areas with grossly deficient protection of workers health and safety in other areas. Industrial development in this country over the last century poses many challenges for Occupational Health and Safety.

The existing legislation in this field is both inadequate and confusing in the various respects mentioned above. The draft bills, though a step in the right direction can only be partial measures. They could potentially lay the basis for a proper, nationally available Occupational Health Service to emerge. The health and safety profiles of workers, indicates that the problems are a mixture of those found in the industrialised countries and in the developing countries. Added to this complexity are the differing origins of the workers, who are drawn from both developed and developing communities of this country and with their differing health statuses and health needs. This is further reflected in the occupational health practises, as observed in the various studies; both the quality and availability of health services for the various categories of workers is different. For the skilled workers and those at the managerial levels, there are fairly sophisticated health services available, usually through medical aid schemes; while for those at the factory floor level and the migrants there are either no services or primitive services available. Their health needs also differ, for the former degenerative conditions are a major problem while for the latter accidents and exposure to various occupational hazards are the major

problems.

The Erasmus Commission, in 1976, recommended that a single Industrial Health Act be promulgated, with overall control of industrial health being vested in a single department viz. The Department of Health.

The further development of Occupational Health in S. Africa, both as a scientific discipline^{ine} occupying a central role in Community Health and as a practical discipline^{ine} committed to improving the health status of all workers, depends upon the identification and resolution of certain critical areas. While some of these critical areas may not be resolved immediately, nevertheless it is considered that their identification and conceptualization is a first and necessary step towards such resolution.

7.1 CURRENT PROBLEMS IN OCCUPATIONAL HEALTH AND SAFETY

The following are some of the current problems identified at four key levels viz. legislative, epidemiological, practical and personnel.

7.1.1 LEGISLATIVE/ADMINISTRATIVE

A clear and pragmatic legislative basis must be laid down, upon which to build a unified and comprehensive Occupational Health Service available to all workers. This implies a political commitment, from the highest levels of authority, to safeguard and promote the health and safety of all workers.

The role and responsibilities of the State (at all three levels of government), the employers and the employees; in the provision of services and facilities must be clearly spelt

out and legislated. While acknowledging the important contribution that local authorities could make, adequate legislative and financial provisions must be made to facilitate this. The relationship between the occupational health services and the present health services (including a future national health services) must be clearly worked out to prevent overlapping and duplication. In the absence of a national health service, geared to meet the needs of workers, the need for and provision of a comprehensive Occupational Health Service assumes greater significance and urgency. Finally, provision must be made for the participation of workers and their organisations in formulating and implementing these services. This is essential for the services to be acceptable and appropriate for their needs.

7.1.2 EPIDEMIOLOGICAL

As mentioned above in Chapter 5, this discipline needs to further develop and implement the epidemiological approach, which is fundamental to Community Health.

Historically, an aetiological and clinical approach has evolved into a broader epidemiological approach to health problems, with its emphasis on multi-factorial aetiology and its focus on preventive, curative and rehabilitative levels of comprehensive care. The application of this approach to Occupational Health and Safety would establish it on a firm scientific basis.

Two areas requiring epidemiological studies in the S. African context are, environmental and health monitoring and early detection of health

impairment. A WHO Expert Committee on Environmental and Health Monitoring in Occupational Health (16), discussed the relative importance of environmental and medical monitoring (1973). A reviewer (17) suggested that the environmental monitoring approach is 'safe place strategy' aimed at eliminating the danger at the workplace, while the medical monitoring approach is a 'safe person strategy' aimed at protecting people against danger, but not by eliminating the danger. The former represents the objective for efforts directed at health and safety at work, while the latter is an intermediate and incomplete stage of control; for complete control the latter must give way to the former. Cost and feasibility are common reasons for adopting safe person strategies; thus the extent to which safe person strategies are relied upon is an index of the inadequacy of resources devoted to the advance of health and safety at work (17). The reviewer posed the following dilemma for occupational health; "should practitioners defend the safe person approach on a cost and feasibility argument when the strategic decision never lies with them? By defending it are they encouraging and prolonging an approach which is not only uneconomic but also fundamentally unsound?" (17)

Another WHO Study Group looked at 'Early detection of Health Impairment in Occupational Exposure to Health Hazards' (18), and suggested guidelines based on a review of measures used in periodic medical examinations to detect early health impairment.

Likewise the use of ergonomics in health and safety needs to further study and application.

The significant contributions made by the National Research Institute on Occupational Diseases (NRIOD) could be supplemented by the establishment of smaller Industrial Health Research Units (IHRU) attached to the Community Health Department to study problems specific to this region. An immediate and vital function, that they could fulfil is the collection and collation of notifications of injuries and illness from workers (as envisaged in the Draft Bill) and the compilation of a uniform list of compensatable or scheduled diseases applicable to all grades of workers. Appropriate and cost effective interventive measures, aimed at prevention or early detection, could then be directed at the priority occupational health problems identified.

A WHO Progress Report on Occupational Health Programmes identified the following major groups of occupational diseases in developing countries (19)

- pneumoconioses and obstructive respiratory diseases caused by dusts
- intoxications by various pesticides
- poisoning by metals particularly lead, and by solvents
- occupational dermatitis
- acute and chronic effects of respiratory irritant gases and vapours
- and noise-induced hearing loss

The picture in this country is not very different from this.

The need to study the physical, physiological, psychological and social aspects of work will increase, as the workers demands for health

and safety are replaced by demands for less fatigue, improved comfort and job satisfaction. Likewise, the needs of the women workers, elderly and handicapped people will increase, as they demand the right to work.

7.1.3 PRACTICAL

The major factor impeding health and safety at work, is the financial costs of these measures. Both the State and industry have a responsibility in meeting these costs; the State should emphasise the savings to industry in terms of productivity and manpower and implement the recommendations of the Erasmus Commission. With respect to the type and quality of occupational health services and facilities, a minimum basic level of service provision should be made initially, later a balance would have to be found between additional service provisions and its cost to industry. Industry could contribute to the establishment of the I.H.R.U. mentioned above.

Another problem is the occupational health service needs of the large numbers of small industries in this country. A flexible occupational health service would have to be devised to provide services to safeguard their workers' health and safety and at the same time ensure their economic survival.

Small industries have been estimated to constitute almost 70% of the work force in manufacturing and related trades (with a range of 45 - 95%) in developing countries (20). Small industries usually hire workers indiscriminately from many vulnerable groups, including the very young, the

old, the partially handicapped and migrants. A WHO review in 1976 found that workers in small industries have a greater risk of suffering from toxic effects or fully developed occupational diseases than those in large industrial concerns (20).

7.1.4 PERSONNEL

As discussed above, the training, orientation and provision of all grades of occupational health personnel is basic to the creation and establishment of an adequately functioning Occupational Health Service. Provision would have to be made for such a service to have the capacity and flexibility to meet the challenges for the rest of this century.

7.2 CONTRIBUTION OF THE DEPARTMENT OF COMMUNITY HEALTH

The Department of Community Health, is ideally placed to make a contribution to some of the current problems identified above. With the provision of adequate resources, the departments' skills in research and epidemiology as well as other skills would be essential in occupational health and safety programmes and training.

At this Medical School, no training in industrial health is provided at the undergraduate level.

At the post-graduate level, an extensive course in occupational health including lectures, field studies and visits to industry, is provided for registrars in Community Health. This course is organised jointly with the Durban Regional Office, Department of Health, Welfare and Pensions.

At the inaugural meeting of the Natal branch of the S.A. Society of Occupational Health, the head of the Department of Community Health, offered to

provide a Diploma in Occupational Health for doctors in industry, provided that the need for it was proven and that sufficient interest was shown. At present the department already has extensive commitments at under-graduate and post graduate levels to provide orientation and training in Community Health to medical students and nurses. The proposed School of Community Health would be an additional resource that the Department would be able to draw upon.

The Erasmus Commission had also suggested that, "refresher courses should be introduced in the community health departments of Universities, where the general practitioner may study the basic principles of industrial health, industrial health nursing and industrial hygiene so that he may apply these principles in the industry in which he is employed." (3)

The Commission in noting the neglect of industrial health in under-graduate training at various medical schools, suggested the formal introduction of industrial health as a subject in all the medical faculties, supplemented by visits to industries.

At present, post graduate diplomas in Occupational Health, are offered at 3 Universities viz. Pretoria Witwatersrand and Stellenbosch (21).

Approximately 30 post-graduate students are in possession of the Diploma from Wits (22).

In terms of undergraduate training, Wits University includes occupational health in the third year in pathology and in the 4th year community medicine block, including factory visits. There are two full time professors in occupational health - Prof. Webster, who is Director of the National Centre

for Occupational Health and Prof. A.M. Coetzee who heads Occupational Health in Department of Community Medicine, Pretoria University.

At Wits University, it has been agreed in principle to offering an M. Sc. in Industrial Hygiene^e following 2 years of study after a suitable B. Sc. degree (22). As soon as staff becomes available, the course will be introduced.

With respect to training in industrial health nursing, the S.A. Nursing Council, has approved a set of directives and syllabus for the Certificate in Occupational Health Nursing (23).

With the formal introduction of this course at the Natal Technikon, the Department of Community Health could provide advice and assistance (24).

7.3 RECOMMENDATIONS

7.3.1 DURBAN REGIONAL OFFICE, DEPT. OF HEALTH, WELFARE & PENSION

The Regional Office should urge that the recommendations of the Commission of Enquiry into Occupational Health, be implemented by the relevant authorities.

Consideration needs to be given to the establishment and development of an Occupational Health Service at regional and national levels.

7.3.2 DEPARTMENT OF COMMUNITY HEALTH

Provide orientation and exposure to occupational health at under-graduate level, as soon as staff become available.

Explore the possibility of providing part-time Diploma in Occupational Health for post-graduates and doctors in industry.

Liase with and assist other institutions in providing an orientation and training in Occupational Health eg. the Certificate Course in Occupational

Health Nursing at the Natal Technikon.

Consider the establishment of an Industrial Health Research Unit to conduct epidemiological studies and research.

7.3.3 INDUSTRY

Individually and collectively, industry and commerce must define and implement a Health and Safety policy; in consultation with the Regional Office, the Department of Manpower Utilisation and their workers.

Contribute financially to the training and provision of occupational health personnel at the various institutions, and to the establishment of an Occupational Health Service, and the Industrial Health Research Unit.

7.3.4 TRADE UNIONS

Identify the common occupational health and safety problems, at factory, industry and national level, and educate workers about them.

Develop and implement a system of health and safety committees of workers' and a system of industrial health care.

Consider suitable training in health and safety for workers.

Establish a centre (not unlike the TUC Centenary Institute of Occupational Health in the London School of Hygiene and Tropical Medicine), to co-ordinate these objects and to liaise between the workers and others involved in occupational health and safety.

ACKNOWLEDGEMENTS

I would like to thank all the doctors and sisters who completed the questionnaire for the field

study; all the organisations and institutes mentioned, and in particular Dr van Rensberg, Dr Mackenzie, Dr Tweedy and Sister Grainger.

APPENDICES

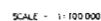
1. List of Departments, Institutions and Individuals consulted.
2. List of Industries sampled in Field Study.
3. Map of Durban Metropolitan Area.
4. Scheduled Trades and Occupations Regulations.
5. Types and Number of Scheduled Trades in the City of Durban.
6. Summary of Legislation pertaining to Occupational Health.
7. Proposed Organisational Plan for Department of Health.
8. Permit Conditions for Chrome Chemicals.
9. Permit Conditions for Associated Lead Manufacturers.
10. Questionnaire and letter used in Field Study.
11. Scheduled Industrial Diseases.

APPENDIX 1LIST OF DEPARTMENTS, INSTITUTIONS AND INDIVIDUALS
CONSULTED

- DEPARTMENTS: Durban Regional Office, Dept. of Health,
Welfare and Pension.
Head Office, Dept. of Health, Welfare
and Pensions.
(Dr. Kock - Principal Medical Officer)
Durban City Health Department
- Department of Manpower Utilisation, Durban
Department of Manpower Utilisation, Pretoria
University of Natal: Dept. of Nursing
Dept. of Economics
Dept. of Sociology
Dept. of Community Health
- INSTITUTIONS: Institute for Medical Literature, Tygerburg
National Centre for Occupational Health
Institute for Biostatistics, Johannesburg
S.A. Nursing Council
National Occupational Safety Association
Registrar: Univ. of Natal
Univ. of Cape Town
Univ. of Witwatersrand
Univ. of Stellenbosch
Human Science Research Council
S.A. Institute for Manpower Research
Natal Technikon
M L Sultan Technikon
Industrial Health Research Unit
Health Care Trust
Community Research Unit
- SOCIETIES: S.A. Society for Occupational Health
Natal Branch of S.A. Society for Occupational
Health
Natal Occupational Health Nurses Discussion
Group
S. Transvaal Occupational Health Nurses
Discussion Group
Medical Association of South Africa
- INDIVIDUALS: Mr Vicki Pinkney-Atkinson - Educational
Service Manager BBDO

APPENDIX 2LIST OF INDUSTRIES SAMPLED IN FIELD STUDY

INDUSTRY	LOCATION	SIZE OF WORKFORCE
1. Lead	Jacobs	100
2. Textiles	Jacobs	3 000
3. Motor	Prospecton	4 272
4. Plastic	New Germany	686
5. Printing	Pinetown	389
6. Chemicals	Pinetown	1 040
7. Leather	Pinetown	1 331
8. Soap and Food	Maydon Wharf	-
9. Petroleum	Reunion	1 270
10. Food	Mobeni	2 157



No. F.2621

RJB/ML:

79-04-04

CODES OF PRACTICESCHEDULED TRADES AND OCCUPATIONS

The following is designed to assist persons and firms to comply with the Scheduled Trades and Occupations Bylaws for the City of Durban, and other relevant legislation.

1. ESTABLISHMENT OF NEW SCHEDULED TRADES AND OCCUPATIONS:

No trade/occupation listed in the bylaws may be established, or buildings, plant or works erected in connection therewith, without the written permission of the Medical Officer of Health being first obtained (see Clause 11).

2. APPLICATION FOR INITIAL PERMISSION:

A written application must be submitted in duplicate to the Medical Officer of Health, together with the necessary plans and particulars as required by section 2, substantially in the form of F.2631. Unless otherwise agreed, a Pollution Abatement Report should accompany the application (see form No. F.2629) or be submitted earlier for consideration if desired.

Before formal lodgement of an application, it may be of mutual benefit to discuss the various implications, and applicants or their representatives are invited to follow this course. Furthermore, as all applications are referred to the City Engineer for comment it is in applicants' interest to contact that Department beforehand also, particularly the Town Planning and Chemical (Air Pollution, Trade Effluent) Branches. If requested, a joint meeting with departmental representatives may be arranged.

3. PRESS ADVERTISEMENTS: (When applicable)

Within 14 days before the date on which an application is formally submitted, a notice substantially in the form of F.2630 must be published in English in a daily English language newspaper, and in Afrikaans in a daily Afrikaans newspaper, circulating in Durban. A copy of each newspaper page containing the notice must accompany the aforesaid application for permission.

4. OBJECTIONS:

Any objection against the Medical Officer of Health's decision to grant or refuse permission must be made (in duplicate) to the Medical Officer of Health within 14 days from the date of such a decision. The final decision will then rest with the City Council.

5. GRANTING OF PERMISSION:

The Medical Officer of Health may grant written permission for an indefinite or specified period.

6. RENEWAL OF PERMISSION:

Prior to expiry of the specified permission, the applicant, if desiring renewal, must apply in writing to the Medical Officer of Health substantially in the form of F.2626.

7. ALTERATIONS AND EXTENSIONS:

No person or firm holding the Medical Officer of Health's permission may extend, alter or add to any building, plant or works used in connection with a scheduled trade or occupation without first having obtained permission therefor. Application substantially in the form of F.2624 with copies of press advertisements (in conformity with the procedure outlined in clause 3 above) substantially in the form of F.2625 must be submitted for approval. (Where required).

When major development projects are envisaged, consideration will in many cases be facilitated by the submission of a revised Pollution Abatement Report (see form F.2629).

No. F.2621

RJB/ML:

79-04-04

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8. CONDITIONS:

The granting of permission is conditional on the proper construction, maintenance and use of the buildings and works and plant and apparatus, and on the effective prevention of nuisance or danger therefrom. The Medical Officer of Health may specify measures to be taken inter alia for preventing pollution, or nuisances or danger to the public health.

Should any pollution, nuisance or danger occur, permission may be suspended or withdrawn.

9. EXEMPTIONS:

The bylaws do not apply to any scheduled trade or occupation lawfully established prior to promulgation, or prior to a particular class of trade being included therein, subject to the following:

- (a) Absence of nuisance or danger to the public; and
- (b) no extension or alteration of or addition to the building, plant or works.

As regards (a), failure to comply with a notice to remedy any defect or carry out any repair or alteration may result in an order closing the buildings, plant or works.

Regarding (b), if material extensions, alterations or additions are contemplated the formalities outlined in Clause 7 above must be observed because the terms of the regulations will then apply.

10. LEGISLATION:

- (a) The Scheduled Trades and Occupation Bylaws were promulgated in Provincial Notice No. 134 dated 22 March 1979.

Any person who -

- (1) erects, extends, alters or adds to any building, plant or works or carries on any trade, business, occupation or calling without the current written permission of the medical officer of health when so required by these bylaws; or
- (2) fails to comply with any notice under these bylaws within the time specified therein

shall be guilty of an offence and liable on conviction to a fine not exceeding R200 in the case of a first conviction, or in the case of a second or subsequent conviction, for the same offence, a fine not exceeding R400, or in default of payment of any fine imposed in either case, imprisonment for any period not exceeding three months.

In the case of a continuing offence, such person shall upon conviction, be liable to a fine not exceeding R10 for each day upon which the contravention continues provided that no such fine in any one prosecution or within any one month exceed R400.

- (b) The Regulations under the Factories, Machinery and Building Work Act, 1941, must be complied with (see form F.224) and the Food Bylaws for the City of Durban if food for sale is manufactured, prepared, stored or handled (see form No. F.226).
- (c) If a scheduled process under the Atmospheric Pollution Prevention Act, No. 45 of 1965 is to be undertaken, an application must be lodged with the Chief Air Pollution Control Officer, Department of Health, Pretoria.
- (d) In the case of the discharge of effluent otherwise than to the municipal sewerage, or in the event of the use of public water in excess of an average of 227 305 litres per day during any month. a permit will be necessary from the Department of Health, Pretoria.

No. F.2621

RJB/ML:

79-04-04

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11. LIST OF SCHEDULED TRADES AND OCCUPATIONS:

In terms of Annexure 'A' of the bylaws the following scheduled trades/occupations are listed thereunder:

Acid works
 Alkali works
 Ambulance service, and removal of human remains
 Ammonia works and bulk transportation
 Animal and fish products processing, including the manufacture of meal for animal feeding
 Asbestos transportation, handling and storage, and the manufacture and bulk-storage of products containing asbestos
 Asphalt plant, permanent and mobile
 Battery manufacturing, reconditioning and servicing
 Bitumen works, including the transportation and operation of mobile bitumen kettles
 Brick and tile works
 Building services contractor (as defined in the Licences and Business Hours Ordinance, No. 11 of 1973) in respect of the base premises
 Burning charcoal, coke or lime
 Carbon black manufacture
 Cement products and pre-mixing works
 Ceramic works
 Chemical product processing, including any process involving a chemical reaction
 Container washing and reconditioning works
 Cooking of bones or blood, sterilising animal hair, manufacturing gum or glue, extracting, by boiling or melting, fat or tallow or grinding bones or other animal matter into meal
 Crematoria
 Chrome and chromate works
 Coal bulk-storage and handling
 Distillery
 Engineering works
 Food manufactory
 Fungicide manufacture, and bulk-handling, storage and commercial usage of fungicides
 Furniture manufacture and re-conditioning
 Gas works
 Glass-fibre manufacture, storage, moulding and finishing
 Glass works
 Hazardous substances (as defined in the Hazardous Substances Act, No. 15 of 1973) manufacture and bulk-blending, transportation and storage (See page 4
 Herbicide manufacture, and bulk-handling, storage and commercial usage of herbicides
 Hide and skin processing
 Manufacturing flock or down
 Manufacturing malt
 Manufacturing soap or candles
 Manufacturing yeast
 Marine Food processing
 Mattress-maker
 Metal products manufacture

No. F.2621

RJB/ML:

79-04-04

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LIST OF SCHEDULED TRADES AND OCCUPATIONS (CONT'D.)

Offensive trades (as defined in the Licences and Business Hours Ordinance No. 11 of 1973)
 Ore processing works, or handling and storage of ores.
 Pesticides manufacture, and bulk-handling, storage and commercial usage of pesticides
 Pigment works
 Plastics products works
 Preparing or tanning leather or curing hides and skins
 Quarrying
 Refining
 Refuse collection, storage, removal, processing or disposal
 Rubber moulding or vulcanising
 Sand and shot blasting
 Sandwinning (as defined in the Licences and Business Hours Ordinance No. 11 of 1973)
 Selling the raw meat of members of the equine family or offering or exposing the same for sale
 Sewage treatment, transportation or disposal
 Scraping, cleaning or cooking intestines or offal
 Scrap yard
 Ship building
 Sludge works
 Spraypainting
 Stone crushing and dressing works
 Stone masonry
 Tannery
 Teasing or shredding works dealing with coir, flock or textiles
 Timber yard and works
 Upholsterer
 Undertaker as defined in the Licences and Business Hours Ordinance No. 11 of 1973)
 Vegetable oil extraction or processing
 Waste material salvaging, collecting, sorting, storing, treating, processing or recycling/reclaiming
 Welding works
 Wood pulping

12. GROUP I HAZARDOUS SUBSTANCES:Category 'A':

Aluminium phosphide;
 arsenic and its salts
 antimony potassium tartrate
 antimony sodium tartrate
 barium and its salts except barium sulphate
 cantharidin
 cyanides of potassium and sodium

APPENDIX 5TYPES AND NUMBER OF SCHEDULED TRADES IN THE CITY OF DURBAN.

1	Asbestos
2	Asphalt plants
2	Battery manufacturing
26	Building service contractors
12	Cement works
1	Ceramic works
10	Chemical works
4	Container Washing works
1	Coal Bult Storage
3	Distilleries
63	Engineering works
8	Food manufacturers
40	Furniture manufacturers
11	Glass fibre manufacturers
40	Motor graveyards
4	Soap and candle manufacturers
1	Marine food processor
32	Metal products manufacturer
1	Metal buffing works
9	Pesticide manufacturers
6	Plastic products works
1	Rubber moulding and vulcanising
4	Sand and shot blasting
17	Scrap yards
1	Shipbuilding
4	Stone masonry
44	Spraypainting
10	Timber yard and works
9	Upholsterers
3	Undertakers
1	Vegetable oil extractions
10	Waste material works
30	Welding works

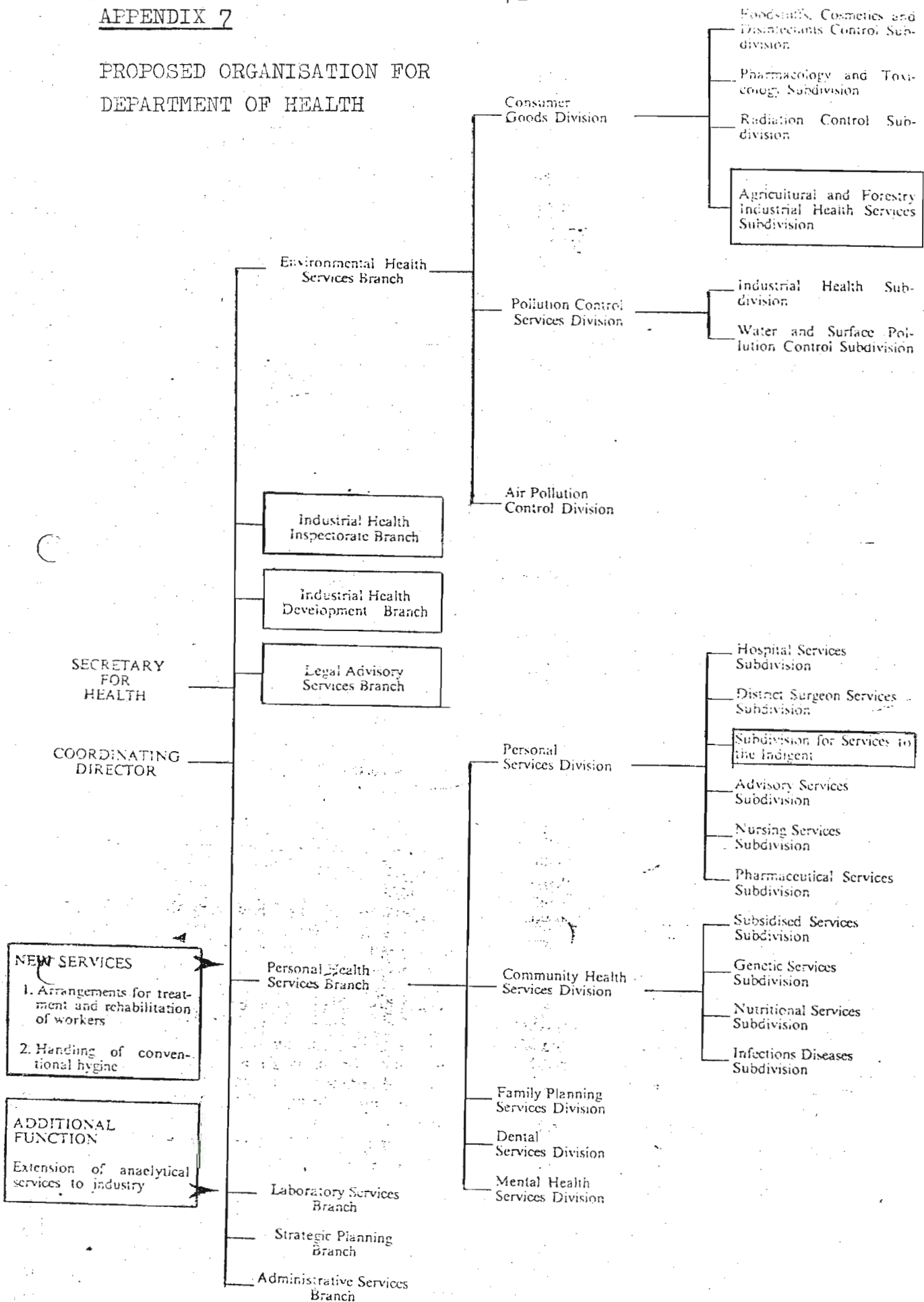
APPENDIX 6

SUMMARY OF LEGISLATION PERTAINING TO OCCUPATIONAL HEALTH (3)

DEPARTMENT	ACTS	SECTOR OF CONTROL	MATERIAL/PROCESS CONTROLLED
Health	Public Health Act Atmospheric Pollution Prevention Act Hazardous Substances Act Foodstuffs, Cosmetics and Disinfectant	Public (non-industrial) areas. Residential areas and mine dumps. Industry Sale, manufacture and importation	- Atmospheric pollution from industry, mines & motor vehicles Hazardous Substances -
Labour	Factories, Machinery & Building Works Act Shops and Offices Act Workmen's Compensation Act Industrial Conciliation Act Wage Act	Industry Shops and Offices Compensation for injuries and death Industrial agreements Wage determinations	All building, manufacturing and industrial activity - - - -
Mines	Mines and Works Act Occupational Diseases in Mines & Works Atomic Energy Act Nuclear Installations Act Mining Rights Act	Mines and Works Diseases contacted in controlled mines and works Radiation control Installations -	Mining and machinery used - Prospecting, mining and disposal of radio-active material Nuclear hazard material Mining
Water Affairs	Public Health Act Water Act	Source & provision of water Industrial and domestic use	Prevention of pollution Industrial effluent

DEPARTMENT	ACTS	SECTOR OF CONTROL	MATERIAL/PROCESS CONTROLLED
Transport	Railways and Harbours Control and Management Act Sea-shore Act Prevention and combatting of Pollution of the Sea by Oil Act	Premises and related areas Sea shores adjoining local authorities The sea	Conditions of employment Transport of goods Discharge of substances Oil pollution
Agricultural Technical Services	Livestock and meat industries Act Animal Diseases and Parasites Act Animal slaughter, Meat and Animal Products Hygiene Act Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act	Appliances and factories Zoonotic diseases Abattoirs Farms, factories and containers	Storage and extraction Animals Handling of meat and animal products Fertilizers, farm feeds, agricultural remedies, stock remedies
Agricultural Economics and Marketing	Dairy Industry Act	Dairy Premises	Dairy products
Community Development	Slums Act	Housing	Nuisances
Forestry	Forest Act	Forests	Fires
Industries	Fishing Industry Development Act Sea Fisheries Act	Fisheries Development Corporation of S.A. Sea Fisheries	Protection for fishermen Dumping of substances in sea or adjacent areas
Bantu Administration and Development	-	Housing	-

PROPOSED ORGANISATION FOR
DEPARTMENT OF HEALTH



OFFENSIVE TRADE REGULATIONS.PERMIT CONDITIONS.ASSOCIATED LEAD MANUFACTURERS (PTY.) LTD.Premises: 245 Lansdowne Road, Jacobs

1. No further material changes in process, procedures or plant to be made without prior consultation with, and if necessary permission from, the City Health Department.
2. Smoke, dust and fume control to be maintained to the satisfaction of the City Engineer at all times.
3. No fuel burning appliances to be installed without the prior approval of the City Engineer.
4. Vapours and Effluvia: if any to be disposed of to the satisfaction of the City Engineer.
5. Fluids and liquid waste matter: if any, to be discharged to the Municipal sewer only with the prior approval of the City Engineer.
6. Medical Supervision:
 - (i) All persons employed in the works area to be submitted to pre-employment chest X-ray at Durban Chest Clinic;
 - (ii) A clinical examination and blood lead estimation must be carried out annually and/or following any suspected lead intoxication incident. If confirmed, City Medical Officer of Health must be notified on Form 180 (Health) by factory doctor.
 - (iii) all employees to be educated in the nature of the risks to health with particular emphasis on the need to observe a high standard of personal hygiene;
 - (iv) cuts and abrasions to the skin to be treated promptly and covered with an impervious dressing until healed.
 - (v) all medical records to be maintained by a responsible official.
7. Personal Protective Measures:
 - (i) Persons employed in the works area must be provided with suitable, approved type breathing apparatus which must be worn all times.
 - (ii) such breathing apparatus to be maintained in a thoroughly clean condition.
8. An efficient dust extraction system together with bag filters must be provided and maintained.
9. Solid Waste: waste silica dust must be collected and stored in suitable impervious bags and disposed of without nuisance or danger to the public health by arrangement with the City Engineer.
10. Effective prevention of any nuisance or danger to the public and employees.

City Health Department
9 Old Fort Place
DURBAN

29 April 1971

Amended 79-12-04

Amended 81-01-13

OFFENSIVE TRADE REGULATIONSPERMIT CONDITIONSCHROME CHEMICALS (SOUTH AFRICA) (PTY.) LTD.CHEMICAL WORKS (CHROME) : 148 BALLANTRAE ROAD, MEREBANK

1. No further material changes in process, procedures, plant or lowering of effluent standard to be made without prior consultation with, and if necessary permission from the City Health Department.
2. Smoke, ash, dust, fume and odour control to be maintained to the satisfaction of the City Engineer at all times.
3. No fuel burning appliances to be installed without the prior approval of the City Engineer.
4. Working Environment:
 - (i) The recommended "Threshold Limit Value" for chromates (measured as CrO_3) not to exceed $0,1 \text{ mg/m}^3$.
 - (ii) Atmosphere concentration in the working environment to be controlled by positional sampling and personal monitoring and where concentrations above recommended threshold limit value are found by either method the sources of atmosphere contamination to be identified and controlled.
5. Personal Protective Measures:
 - (i) Overalls, laundered daily, gloves and eye protection to be provided for exposed personnel.
 - (ii) Suitable approved type dust masks to be worn by staff where atmosphere sampling has concentrations above $0,1 \text{ mg/m}^3$.
 - (iii) Such masks to be maintained in a clean condition at all times and filters changed regularly.
 - (iv) Plant and equipment to be thoroughly cleaned regularly and where necessary for certain jobs, air-supplied breathing apparatus to be supplied.
6. Solid Waste:
 - (i) Sodium bisulphate and alumina waste to be deposited at the approved disposal site at the base of the day's workings and be immediately and completely covered by reject chrome ore.
 - (ii) Reject chrome to be dumped only on -
 - (a) the 45,7 m strip of Government owned land parallel to the north side of the Umlaas Canal; or
 - (b) 12 hectares on the south side of the Canal described as Block B of Durban Airport No. 14263.
 - (iii) The reject ore when dumped shall be covered with at least 450 mm of suitable soil and grassed to the satisfaction of the City Engineer and in accordance with the requirements of the Department of Water Affairs.
 - (iv) Reject chrome ore not to exceed $0,3\%$ soluble chromate, which shall be reduced within the limits of practicality to $0,1\%$ within 2 years of date.

2.6.75

7. Trade Effluent:

Waste water from the laundering of overalls after each shift if discharged to sewer shall comply with the limits imposed by section 18 of the Sewerage Bylaws (CrO₃ 50 p.p.m.): trade effluent from any other source is not acceptable.

8. Medical Examination Plan:

- (a) Examinations, including FVC, at the start of employment, thereafter at half-yearly intervals by the Company Medical Officer.

Recording of medical findings on a card-index apart from other reports (accidents, any treatments etc.) Medical documentation may be compiled by the Nursing Sister under the supervision of the Company Medical Officer).

(b) History:

Mining
Tuberculosis
Bronchitis
Skin Diseases
Nasal Operations
Asthma

(c) Findings:

General Condition
Skin Diseases, especially Eczema

Nasal Speculum Findings ("A" = Normal

"B" = Ulcus

"C I"

= perforation size of a pin head

"C II"

= perforation size of a lentil

"C III"

= perforation bigger than a lentil)

Throat Inspection

(Throat and nasal speculum examination to be undertaken half-yearly by Company Medical Officer and recorded).

Clinical examination of the Lung

Vital Capacity (Vitalograph, forced vital capacity) = FVC

Breathing (Wright Peak flow meter, forced expired volume in one second) = FEV₁ (Ref: Kory, R.C. et al.)

Clinical spirometry in normal men. : Am. Journ. of Medicine 30 (1961) 243-258).

It is recommended that the Company Medical Officer undergo intensive training in pulmonary function testing.

(d) X-Ray Examination (Radiology):

- (i) The Durban Chest Clinic to take a large plate for pre-employment purposes at the Company's expense;
- (ii) private radiologists to take a large plate annually. (Spirometry to be done at as near as possible to the time of the X-Rays);
- (iii) the Durban Chest Clinic will keep the original pre-employment X-Ray but send copies of the report to the Company and to the private radiologist. The private radiologist will send his reports together with the X-Rays to the Company who will maintain them suitably filed.

(e) Suitability for Examination:

Persons unsuitable for employment are those with the following diseases:

Pneumoconiosis;
Active pulmonary tuberculosis, or significant scarring;
Chronic bronchitis;
Frequent bronchitis with an allergic aetiology;
Asthma;
Emphysema;

Eczema, including psoriasis or other skin diseases related to the epidermis;

Distinctly reduced FVC and FEV₁,

Other relevant pathological radiological findings e.g. idiopathic interstitial fibrosis, pleural thickening, tumours.

- (f) Yearly reports on special occurrences, especially cases of septal ulcer, septum perforations, skin ulcer, bronchitis, significant X-Ray results, carcinoma, to the Medical Division Leverkusen with copy to the City Medical Officer of Health, City Health Department, Durban. It is accepted that the City Medical Officer of Health has the authority to call upon the radiologist for comments or to see the X-Rays at any time or to call for a report from the Company Medical Officer.

- (g) General Recommendations:

At the first follow-up examinations after $\frac{1}{2}$ year of employment, special attention has to be paid to signs of bronchitis and other significant findings, which make the candidate unsuitable for further employment. An early termination of employment would safeguard the employees against any dangers to subsequent health, especially as there are no other employment possibilities within CCSA.

At the general medical consultation special attention has to be paid to the following points:

- (i) Thorough and regular repeated instruction to the employees about work hygiene, especially when working with dusty material and fumes. All employees to be educated in the nature of the risks to health with particular emphasis on the need to observe a high standard of personal hygiene.
- (ii) Regular distribution and thorough application of nasal ointments (Bormelin or similar type).
- (iii) Intensive skin care for the prevention of skin rhagades or small sores as an entry for chrome material and thereby causing chrome ulceration. Cuts and abrasions to the skin to be treated promptly and covered with an impervious dressing until healed. Any skin irritation to be reported immediately to the Nursing Sister.
- (iv) Intensive care and treatment of infectious diseases of the nose-throat area and the bronchi (influenza, or similar conditions) to prevent any additional infectious factors likely to cause chronic bronchitis. If necessary, the Company Medical Officer to be provided with medicines, amongst other things sulfonamides and antibiotics, to enable him to give immediate treatment.
- (v) No smoking or eating in the working areas and strict personal hygiene to be observed in regard to smoking and eating habits immediately after leaving the working area (e.g. hands, face, etc. should be cleansed before eating or smoking).

9. Effective prevention of any nuisance or danger to the public and employees.

* * *

This plan is subject to amendment by mutual agreement from time to time.

UNIVERSITY OF NATAL
DEPARTMENT OF COMMUNITY HEALTH

ASPECTS OF OCCUPATIONAL HEALTH PRACTISES
(All Information will be treated as confidential)

S E C T I O N I

WORK SPACE DATA

Name of Work Place :

Location/Area :

Size of Workforce :

Sex Distribution : Males Females

Race Distribution : African Indian

Coloured White

Nature of Industry/
Work Process :

S E C T I O N I I
(Please tick appropriate block).

AVAILABLE OCCUPATIONAL HEALTH SERVICES

What Occupational (Industrial) Health Services are available on the Premises?

NIL	FIRST AID KITS/ROOMS	FULL TIME NURSE	CLINIC	PART TIME DOCTOR	FULL TIME DOCTOR	HOSPITAL	OTHER

Components of Industrial Health Services Available.

MAINLY MINOR AILMENTS ONLY	CURATIVE AND HEALTH EDUCATION	CHRONIC CONDITIONS	REHABILITATION

Which of the following health personnel are available on the premises?

Nil
Nurse/Sister
Occupational Health Nurse
(Trained)
Safety Officers (No. & Rank)
Doctor
Industrial Hygienist
Industrial Physician
(Trained)
Other

Is there a medical aid scheme?

Yes

No

For what category of staff is this available?

Managers/Executive

Senior Personnel

Clerical/Admin. staff

Technicians

Mainly Admin. staff

Mainly labourers

All workers

Is there a Health and / or Safety Committee?

Yes

No

Is there medical aid by other facilities, such as?

Have any principles or knowledge of ergonomics been applied or used here?

Yes

No

Which of the following screening/examinations are done?

Pre-Employment screening

Annual Physical Examinations

Regular checks for workers at risk

Screening for chronic conditions

Executive Health Programs

Are any of the following services or benefits available?

Welfare services on the premises? (ie. Social Worker)

Pension schemes

Recreational facilities for workers

Catering facilities for workers

Housing/Housing subsidy

Free food/allowance

Funeral benefit schemes

Sponsored facilities

S E C T I O N I V

SAFETY
HEALTH EDUCATION

Are there any regular talks, films, programs on Health and Safety for workers?

Yes

No

How Often?

Weekly

Monthly

Annually

Others

By whom?

Factory staff

City Health Department

Government Department

Others

Is there an induction/training programme for new workers?

Yes

No

Are workers informed about the Health and Safety hazards of their work?

Yes

No

If Yes - How frequently?

Is there a Family Planning Service for workers?

Yes

No

What proportion (percentage) of workers utilize it?

Is there any exposure to the following? 80

Gases or Chemicals

☐

Explosives

☐

Dust

☐

Noise

☐

Excessive Heat

☐

Excessive Cold

☐

Vibration

☐

Is there any protection provided against any of this?

Yes

☐

No

☐

If Yes - Please Specify!

Is there any

-Shift work

☐

- Overtime work

☐

- Night work

☐

Any other special tests (Please specify)?

SECTION VI

HEALTH AND SAFETY RECORDS

Could you specify the following?

Accident record (rate) _____ ☐

Sickness record (rate) _____ ☐

Absenteesion record (rate) _____ ☐

Health Safety Awards _____ ☐

Has the factory Inspector visited the premises?

Yes

☐

No

☐

How Often!

What are the main occupational (industrial) health problems or diseases?

How would you rate the Health and Safety Services offered here?

Fair

☐

Average - Good

☐

Above Average

☐

Excellent

☐

How could this service be improved?

.....



University of Natal

Faculty of Medicine

Department of Community Health

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Head of Department

Professor I. W. F. Spencer

M.D., M.F.C.M., D.P.H., D.T.M. & H., F.R.S.H.

31st July '81.

Dear

The Department of Community Health, University of Natal is undertaking a study on "Aspects of Occupational Health in the Durban Metropolitan Area". The purpose of the study is to obtain an overview of the types of occupational health services available in industry. The importance of occupational health services in the maintenance of a healthy workforce is vital to South Africa, both strategically and economically. These considerations are the reasons for undertaking this study.

To facilitate the collection of data, we have enclosed a questionnaire. I would be grateful if you ^{could} fill this as completely as possible and return it to us ; at your earliest convenience ; in the self addressed envelope provided.

Any additional comments or data on any aspects of the questionnaire or of the services that you offer would be most welcome. Copies of your annual report or medical report would also be most appreciated.

If you have any problems with the questionnaire or require any further information, please do not hesitate to contact me, at the Department of Community Health, at the Medical School.

Thanking you for your interest and co-operation.

Yours sincerely

Dr C.C. Jinabhai

DR C.C. JINABHAI

REGISTRAR : COMMUNITY HEALTH

ANNEXURE 9

INDUSTRIAL DISEASES (SECTION 89)

SECOND SCHEDULE TO THE WORKMEN'S COMPENSATION ACT, 1941

<i>Description of disease</i>	<i>Description of occupation</i>
Ankylostomiasis (hookworm) in workmen other than Asiatics or Natives	Mining carried on underground.
Anthrax.....	The handling of wool, hair, bristles, hides and skins. Work in connection with animals infected with anthrax. Loading, unloading or transport of goods.
Arsenical poisoning.....	Any work involving the use of arsenic or its preparations or compounds.
Poisoning by benzene or its homologue and their nitro and amino derivatives and its sequelae.....	Any work involving the production or use of or contact with benzene or its homologue or their nitro and amino derivatives.
Chrome ulceration.....	Any work involving the handling or use of chromic acid, chrome salts or other materials containing chromic acids or chrome salts as a constituent.
Cyanide rash.....	The handling of cyanide or any work involving the use of cyanide.
Dermatitis due to dust, liquids or other external agents present in the specific process or processes of the workman's occupation.	—
Halogen derivatives of hydrocarbons, poisoning by the.....	Any work involving the manufacture or use of or contact with the halogen derivatives of hydrocarbons.
Lead poisoning or its sequelae.....	The handling of lead or its preparations or compounds or any work involving use of lead or its preparations or compounds.
Manganese poisoning.....	Any work involving the use or handling of or exposure to the fumes, dust or vapour of, manganese or a compound of or substance containing manganese.
Mercury poisoning or its sequelae.....	Any work involving the use of mercury or its preparations or compounds.
Pathological manifestations due to radium and other radioactive substances or X-rays	Any work involving the use or exposure to the action of radium or radioactive substances or X-rays.
Phosphorus poisoning.....	Any work involving the use of phosphorus or its preparations or compounds.
Primary epitheliomatous cancer of the skin.....	Any work involving the handling or use of tar, pitch, bitumen, mineral oil or paraffin.
Silicosis, asbestosis or other fibrosis of the lungs caused by mineral dust	Any occupation (other than in a "dusty atmosphere" as defined in the Pneumoconiosis Act, 1956), in which workmen are exposed to the inhalation of silica dust, asbestos dust or other mineral dust.
T.N.T. poisoning.....	Any work involving the preparation, packing or handling of trinitrotoluol (T.N.T.).
Byssinosis.....	Any occupation in which a workman is exposed to the inhalation of cotton or linen dust.

REFERENCES

1. Beaton G.R. and Pinkney-Atkinson V (1979):
S.A.Med. J. 56, 218
2. Erasmus C.A. (1980): S. Afr. Med. J. 57, 21
3. Erasmus (R) (Chairman) (1976):
Report of the Commission of Inquiry on Occupational
Health R.P. 55. Pretoria: Government Printer
4. Occupational Diseases in Mines and Works Act
78 of 1978. G.G. No. 4048 5 Oct. 1978 Pretoria: G. Printer
5. Occupational Diseases in Mines and Works Amendment
Act 1978. G.G. No. 5944 20 March 1978, Pretoria:
Government Printer
6. Silicosis - Lecture delivered by Dr. J van Rensburg
September 1980, Durban.
7. Katz E. (1978): Paper delivered at the SALDRU
Conference on "Economics of Health in S.A."
Cape Town: Ravan Press.
8. Myers J (1980): SALDRU Working Paper No. 28
Cape Town
9. Hansard Vol. 4 Column 1660 20 February 1978
Cape Town
10. Schilling R.S.F. (1981): Occupational Health Practises
2nd Edition London: Butterworth
11. Morgan W.K.C. (1978): Br. J. of Ind. Med. 35, 285-291
12. Botha L. (1981): African Culture and the Health
Worker. Paper delivered at the Total Health Care
for the Industrial Worker symposium. July 1981:
University of Natal
13. Ward Gardener A. (1979): Current Approaches to
Occupational Medicine Bristol: John Wright & Sons
14. Hunt N. (1981): The Need for Occupational Health
Nurses - Paper delivered at the 'Total Health Care
for the Industrial Worker' symposium.

15. Pinkney-Atkinson V.J. (1978): A Survey of Occupational Health Nurses in S.A. - Unpublished paper, Univ. of Witswatersrand.
16. Environmental and Health Monitoring in Occupational Health. Technical Report No. 535 (1973): WHO Geneva.
17. Atherley G.R.C. (1977): Br. J. of Ind. Med. 34, 65
18. Early Detection of Health Impairment in Occupational Exposure to Health Hazards. Technical Report No. 571 (1975). WHO Geneva.
19. Occupational Health Programme, A Progress Report. 32nd World Health Assembly A32/WP/1 Geneva: WHO
20. Meeting on organisation of health care for small industries, Geneva 1975 Document, WHO: OCH/76.2 (1976)
21. Baker M.D. (1981): Personal communication.
22. Webster I (1981): Personal communication.
23. Directive for Certificate in Occupational Health (1980): S.A. Nursing Council. Pretoria.
24. Berghammer (1981): Personal communication
25. Zenz C. (1980): Developments in Occupational Medicine. Year Book Medical Publishers: Chicago
26. Maree J (1979): South African Labour Bulletin 4, 9
27. Industrial Health Research Group: Sick Pay and the Factories Act: July 1981. S.A. Labour Bulletin 6, 8
28. Reubel D. (1981): Paper presented at the U.C.T. Medical Students Conference, August 1981.
29. The Dangers of Asbestos - Health Care Trust
30. Cotton Dust and Brown Lung - ibid.
31. Lead is a Poison - ibid.