## **Contents**

| Foreword   | V        |
|--|----------|
| Preface  | VII      |
| Acknowledgements   | IX       |
| Contributors   | XVII     |
| Chapter 1 Introduction   | 1        |
| Geological Exploration   | 1        |
| Drilling Rigs  | 4        |
| Exploratory Drilling   | 4        |
| Development  | 10       |
| Production   | 13       |
| Communications and Transport   | 17       |
| Hazards  Costs of Offshore Operations  | 17<br>19 |
| Implications for the Doctor  | 19       |
| implications for the Doctor  | • •      |
| Chapter 2 Legal Aspects of Safety, Health and Welfare on the United Kingdom Continental Shelf/A.J. Higginson | 20       |
| C  |          |
| The Continental Shelf Doctrine   | 20       |
| Continental Shelves  | 20       |
| The United Kingdom Continental Shelf   | 21       |
| Safety, Health and Welfare Legislation on the  |          |
| United Kingdom Continental Shelf   | 22<br>22 |
| Offshore Installations and Pipelines   | 27       |
| Employer's Liability Insurance Offshore  | 28       |
| References.  | 29       |
| Schedule of Principal Legislation Governing Safety,  |          |
| Health and Welfare Offshore in France,   |          |
| The Netherlands and Norway   | 32       |
| Chapter 3 Pre-placement and Periodic Medical   | _        |
| Examinations   | 34       |
| Pre-placement Examinations   | 34       |
| Periodic Examinations  | 41       |



XII Contents

| Chapter 4     | Provision of Back-up Services               | 43   |
|---------------|---|------|
| Mobile        | Intensive Care Teams                        | 46   |
| Offsho        | ore Disasters                               | 48   |
|               |   | 70   |
| Chapter 5     | Offshore Medical Care                       | 53   |
| Function      | ons of the Offshore Medic                   | 53   |
| Medica        | s in the North Sea                          | 53   |
| Medics        | and Diving                                  | 56   |
| Medica        | and Diving                                  | 57   |
| Vicule        | al Facilities and Supplies                  | 58   |
| Sti<br>Ma     | etchers                                     | 64   |
| IVI C         | echanical Aids to Respiration               | 65   |
| 1118          | struments, Drugs and Dressings              | 66   |
| Commi         | rvival Suits                                | 67   |
| Comm          | unications and Transport                    | 69   |
| 1 ransp       | orting a Sick or Injured Person             | 72   |
| Standb        | y Vessels                                   | 73   |
| Medica        | d Services to Ships                         | 77   |
| Fir           | st-Aid Supplies for Rig Lifeboats           | 78   |
| <b>6</b> 0    |   |      |
| Chapter 6     | Some Special Problems                       | 79   |
| Hydros        | gen Sulphide                                | 79   |
| Methar        | ne  | 80   |
| Methar        | ol  | 80   |
| Ethyler       | ne Glycol                                   | 80   |
| Obesity       | · · · · · · · · · · · · · · · · · · ·       | 81   |
| Dust          | ***************************************     | 81   |
| Drilling      | 3 Mud                                       | 81   |
| Weldin        | g   | 82   |
| Noise a       | nd Vibration                                | 82   |
| Trauma        | a   | 84   |
| Scabies       | and Other Infestations                      | 85   |
| Tropics       | al and Other Endemic Diseases in Immigrants | 85   |
| Psycho        | logical Disturbances                        | 86   |
| Drugs a       | and Alcohol                                 | 87   |
| Partial       | Drowning and its Treatment                  | 88   |
| Imr           | nediate First Aid                           | 89   |
| Hypoth        | ermia                                       | 90   |
| r ry potn     | ······································      | 90   |
| Chapter 7     | <b>Diving</b>                               | 95   |
|               |   |      |
| Diving<br>SCI | Techniques                                  | 95   |
| Sur           | UBA Diving                                  | 95   |
| Sui           | face-Oriented/Surface-Supplied Diving       | 96   |
| Casas         | ing Systems                                 | 96   |
| Jases L       | Jsed in Diving                              | 101  |
| ANT:          | vad Halium and Ouvean (Halian)              | 101  |
| Dagger        | xed Helium and Oxygen (Heliox)              | 102  |
| Modical       | pression Techniques                         | 102  |
| ivieuicai     | Problems                                    | 103  |
| Ear           | r robients in Diving                        | 1113 |

Contents

| Other Injuries in the Water or in Chambers   | 103        |
|--|------------|
| Near Drowning  | 104        |
| Pulmonary Barotrauma   | 104        |
| Decompression Sickness   | 104        |
| Treatment of Gas Embolism and Decompression  |            |
| Sickness   | 106        |
| Air Diving   | 107        |
| Mixed Gas Diving   | 108        |
| Notes  | 109        |
| Immediate Treatment of Decompression Sickness  |            |
| when a Chamber is not on Site  | 109        |
| Professional Bodies Associated with Diving   | 110        |
| Sources of Medical Advice in a Diving Emergency  | 110        |
| Medical Examination of Divers  | 110        |
| Return to Diving Following Decompression Sickness and  | 110        |
| Other Illnesses  | 112        |
| After Type 1 Decompression Sickness  | 112        |
|  | 113        |
| After Type 2 Decompression Sickness  | 113        |
| Flying After Diving  |            |
| Transport of a Patient with Decompression Sickness   | 113        |
| Transfer Under Pressure and Hyperbaric Rescue  | 114        |
| Sources of Assistance in a Diving Emergency  | 115        |
| Long-term Effects of Diving  | 116<br>116 |
| Drugs Under Pressure   | 110        |
| Chapter 8 Catering and Hygiene/N. Chalk  | 118        |
| Critical Areas   | 119        |
| Food Sources   | 120        |
| Containers and Transport   | 120        |
| Storage Offshore   | 120        |
| Thawing Frozen Foods   | 121        |
| Galley Design  | 121        |
| Floors and Scuppers  | 122        |
| Galley Bulkheads   | 122        |
| Ventilation  | 122        |
| Food Handlers' Toilet Facilities   | 123        |
|  | 123        |
| •  | 123        |
| Catering Machinery (Galley)  | 123        |
| Cleaning of Specific Items   | 124        |
| Dining Room  | 123        |
| Cooks' Tools   |            |
| Food Handlers  | 127        |
| Nutrition Offshore   | 127        |
| Routine Health and Hygiene Inspections   | 128        |
| Chapter 9 Dental Problems Offshore/D. Pyper  | 131        |
| Dental Standards   | 132        |
| Dental First Aid   | 132        |
| Dental Problems in Diving  | 134        |
| Pain In and Around the Mouth in Divers   | 135        |
| a will all write a strong the life life and the service and th |            |

XIV

| F       | Prosthetics  | 136   |
|---------|--|-------|
| 5       | Summary  | 136   |
|         | and Man Entel Accidents/                             |       |
| Chapter | 10 Investigation of Fatal and Non-Fatal Accidents/   | 137   |
| I.M. C  | falder   | 137   |
| i ne    | Legal Investigative Aspects                          | 137   |
| 1       | Personnel  | 138   |
|         | Permission   | 138   |
|         | Non-Fatal Accident                                   | 139   |
| Ine     | Non-Fatal Accident Investigation                     | 139   |
| Orga    | anisation of Accident Investigation                  | 139   |
| Acci    | dent History   | 140   |
| Divi    | ng Accidents   | 141   |
| (       | Causes   | 142   |
|         | Accident Check List Processes of Rodies              | 143   |
|         | Recovery, Storage and Preservation of Bodies         | 144   |
|         | Equipment  | 144   |
|         | Role of the Pathologist                              | 146   |
|         | Unascertainable Cause of Death                       | 146   |
|         | Laboratory Support in Diving Accidents               | 147   |
| Trai    | nsport of Bodies                                     | 147   |
|         | Return of a Body to the United Kingdom               | 148   |
|         | Export of Bodies from the United Kingdom             | 148   |
| Con     | iclusion   | 140   |
|         |  |       |
| A a al  |  |       |
| Append  |  |       |
| 1       | Drugs and Dressings for Offshore Installation        | 1.40  |
|         | Sick Bays  | 149   |
| 2       | List of Drugs, Dressings and Equipment Required      |       |
|         | Under Scale III of the Merchant Shipping             |       |
|         | (Medical Scales) Regulations 1974                    | 153   |
| 3       | Medical Supplies to be Kept at Diving Sites          | 156   |
| _       | Medical Equipment for Offshore Emergencies           | 158   |
| 4       | Medical Equipment for Offshore                       |       |
| 5       | Contents of Medical Chest for Use in Offshore        | 161   |
|         | Disasters  | 101   |
| 6       | List of Extra Medical Equipment to be Kept on        | 1/2   |
|         | Rigs for Use in Major Disasters                      | 162   |
| 7       | Major Items of Furniture and Medical Equipment       |       |
|         | for Offshore Installations                           | 163   |
| 8       | Addresses of Societies and Committees Connected      |       |
| O       | With Diving  | 165   |
| ^       | Training Programme for Rig Medics                    | 166   |
| 9       | Routine Offshore Hygiene Inspection                  | 172   |
| 10      |  | . , 2 |
| 11      | Extract from the Offshore Installations (Operational |       |
|         | Safety, Health and Welfare) Regulations 1976:        | 175   |
|         | S.I. 1976. no. 1019                                  | 175   |

Contents

| 12      | Extract from the Norwegian Regulations Regarding    |     |
|---------|---|-----|
|         | Medical Facilities on Offshore Installations:       |     |
|         | Royal Decree, 25 November 1977, Relating to         |     |
|         | Hygiene, Medical Equipment, Medicines, etc.,        |     |
|         | on Installations for Production, etc., of Submarine |     |
|         | Petroleum Resources, etc                            | 177 |
| 13      | Control of Noise and Vibration on Offshore          |     |
|         | Installations (from Offshore Installations:         |     |
|         | Guidance on Design and Construction, HMSO)          | 180 |
| 14      | First Aid and Paramedical Training of Divers.       |     |
|         | Guidelines Compiled by European Undersea            |     |
|         | Biomedical Society                                  | 184 |
| 15      | DMAC Aide Mémoire for Recording and                 |     |
|         | Transmission of Medical Data to Shore               | 187 |
| 16      | Sources of Assistance in Diving Emergencies         | 195 |
| 17      | The Use of Drugs Under Pressure                     | 196 |
| 18      | Recommended Contents of First-Aid Boxes in          |     |
|         | Lifeboats and Survival Capsules                     | 200 |
|         |   |     |
|         |   |     |
| Subject | (Inday  | 201 |