

A HANDBOOK OF FIRST AID & BANDAGING

BOTH AN ELEMENTARY AND ADVANCED COURSE OF TRAINING

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FOURTH EDITION

FOREWORD

I AM very pleased to write a foreword to the new fourth edition of this excellent Handbook as I have watched its progress through the former editions. To-day it is the duty of all citizens to be *au fait* with the principles and practice of first aid. We are living in a mechanical age and accidents are frequent, far too frequent, and a knowledge of first aid will often ~~save~~ lives. It matters little whether the accident is in the factory, ~~on the roads~~, at sea, or in the air—a knowledge of first aid is essential in my opinion.

I consider this book to be the best, the most up to date, and the most practical Handbook on First Aid and Bandaging that has been written. The authors are to be congratulated on writing in such a concise and lucid way and on making use of really good drawings, so that the book will prove of the greatest value to all first aid workers, to all nurses and assistant nurses, to V.A.D.'s, and also to doctors who are required to lecture on first aid.

I would like to congratulate Dr. Belilios and his fellow authors on a really good job, and I wish the book continued success.

CECIL WAKELEY

73 Portland Place,

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September, 1954.

PREFACE TO FOURTH EDITION

WE have much pleasure in introducing the fourth edition of this Handbook, the demand for which we are pleased to find continues not only in England but in many parts of the Commonwealth and Empire. In industry, as well as in other spheres, it has proved its worth and at least one shipping company has included it in the first aid kit put on board each of its ships. It is a great satisfaction to us that this Handbook should be serving so useful a purpose. We were indeed pleased to note that the book was shown in the film entitled "The Cruel Sea."

We have taken this opportunity of making a complete revision of the text, maintaining, however, our original purpose of "giving a complete training in first aid such as can be readily understood both by the beginner and the advanced student."

We have been faced with a difficult problem in preparing this edition, since the pendulum of first aid teaching has swung a long way since our last edition was published. But we are not satisfied that this pendulum has yet settled; for this reason we have retained in this volume many of the older methods of treatment which have stood the test of time—for example, most of the pressure points, the use of splints for fractures, etc. Nevertheless, we have described, in a new chapter, the simplified treatments for fractures, *i.e.* body splinting.

The Holger Neilsen method of artificial respiration, now generally agreed to be the most efficient, has been included in the chapter on Resuscitation, and we are very grateful to the Danish Red Cross for sending us their literature on this subject with permission to use their pamphlets to an "unlimited extent" in the preparation of this edition.

We are greatly indebted to Sir Cecil Wakeley Bt. not only for his kind Foreword but also for the encouragement that he has given us from the very inception of this book; also to Dr. J. D. Score Flew and Mr. R. F. West for their valuable suggestions, and to Miss M. McCarty, who has again revised the index. Finally we must express our gratitude to our publishers Baillière, Tindall & Cox, Ltd., for their continued courtesy and assistance.

A. D. E.
D. K. M.
K. F. A.

PREFACE TO FIRST EDITION

At the present time the practical value of first aid is being put to the test, and it is the duty of every member of the community to possess some knowledge of the subject, and of those in the Hospital and Civil Defence Services to be expert. Moreover, many who have trained and studied first aid in past years are now anxious to go further and to receive more advanced instruction.

This book has therefore been prepared with a definite purpose, namely to provide a concise handbook giving a complete training in first aid, yet written so simply that it can be as readily understood by the beginner as by the advanced student. So far as our knowledge goes, there is no book covering the same ground in such a way.

We have used the words "complete training" with the intention of making it clear that what we have written is not an abridged course of training; on the contrary, our object has been to increase the general knowledge of first-aiders, and to provide a textbook suitable for the use of both the elementary and the advanced student. With this end in view, graded courses of lectures and a scheme of practical work have been outlined in the Appendix, thus enabling the book to be adapted to the particular needs of varying types of students and classes.

All the training recommended by the British Red Cross Society, the St. John Ambulance Association, the Civil Nursing Reserve and the General Nursing Council is fully covered, and the many first-aid workers employed in factories, schools, and other institutions will, we hope, find this handbook valuable in making themselves conversant with more advanced first aid.

So far as methods of applying bandages, etc., are concerned, we have kept as far as possible to those accepted in first aid circles and have called attention to the slight differences in technique advocated by the St. John Ambulance Brigade and the British Red Cross Society in their textbooks.

Great care has been given to the illustrations, most of which have been drawn specially for this book, many from original photographs which were prepared for use as lantern slides at Wimbledon Technical College and Battersea Polytechnic. Each illustration has been chosen to demonstrate visually the instruction being given, and in practical work there should be no difficulty in learning from the pictures.

The original photographs were taken by Lionel Shepherd, B.Sc., F/Lt. Kenneth Cawley, L.D.S., R.A.F.V.R., Lieutenant Ennis, R.N.V.R., and the Rev. David Peck, B.A., to whom we express our gratitude, and also to those who arranged the practical demonstrations for this purpose—Mrs. Angel, Mrs. Keene, Miss Mocatta, Miss Reed, Miss Roberts and Miss Simmons. For the drawings which have been so carefully prepared from the photographs we must thank Mr. D. J. Kidd and Mr. J. M. Hockey.

Other illustrations have been borrowed by kind permission from Rose and Carless' "Textbook of Surgery," Armstrong's "Aids to Anatomy and Physiology for Nurses," and from other volumes in the Nurses' Aids Series.

We much appreciate the kind help of Dr. Noel Harris and Dr. E. L. Middleton, who have carefully studied the chapters on Psychological Ailments and Industrial Poisoning respectively, and have made a number of valuable suggestions.

The chapters on Methods of Transport have been specially written by Superintendent C. W. Hipkins, to whom we are very grateful.

We wish also to thank Mr. R. F. West and Mr. W. J. L.

PREFACE

Shepherd, B.Sc., who have taken great interest in the book, have read the proofs and suggested welcome improvements; Miss E. Higton, who has not only acted in a similar capacity, but has also prepared the manuscript for the press as well as the Index; Miss M. McCarty and Mr. A. H. Ross for their persevering services.

We are greatly indebted to Surgeon Rear-Admiral Cecil P. G. Wakeley, C.B., D.Sc., F.R.S.E., F.R.C.S., for his kindness in reading the manuscript and writing the Foreword.

Finally, we must express our gratitude to the publishers, Messrs. Baillière, Tindall and Cox, for the great care which they have taken in the production of this book and for their ever courteous and helpful assistance.

A. D. B.

D. K. M.

K. F. A.

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CHAPTER I

GENERAL PRINCIPLES OF FIRST AID

FIRST aid is a branch of medical science which provides for the immediate treatment of patients who are suffering from the effects of accidents and sudden illness.

First aid is not concerned with the actual cure of injuries or disease, for this is obviously the duty of the doctor who has spent many years in the study of his art. Its purpose is to fulfil certain definite objects, of which the most important is to preserve the health and strength of a patient until there is a chance of obtaining medical assistance.

Objects.—It is very important that the true objects of first aid should be clearly understood ; they will therefore be described as follows ;

(1) **To save life.** Many lives are saved daily in all parts of the world by men and women who have learnt what to do in an emergency.

When bloodvessels have been cut in accidents there may be only a few minutes available in which to save life ; but the skilled first-aid~~er~~ is in a position to stop the bleeding quickly and with certainty.

(2) **To produce improvement.** The first-aid~~er~~ is often able to produce a rapid improvement in the condition of his patient ; thus, by relieving pain, providing comfort and applying even simple methods of treatment, he will soon earn the gratitude of the patient.

(3) **To prevent complications.** Occasionally, one of the most valuable services that a first-aid~~er~~ can render is to prevent his patient becoming worse following an accident ; many injuries—*e.g.* broken bones—soon become more serious if treatment is delayed or when it is undertaken by persons who have insufficient training in first aid. In cases such as these the first-aid~~er~~, often by his influence alone, can prevent unfortunate complications.

(4) **To prepare for medical treatment.** Many of the methods employed in first aid have been carefully designed to prepare

a patient for subsequent medical treatment. Thus, the measures recommended for burns are intended to prepare the wounds for the specialised treatment which will be applied later by the doctor.

Moreover, sometimes the victim of a serious accident may have to undergo an operation for his cure. This, however, cannot be safely performed while the patient is in a state of lowered vitality. Hence, one of the chief objects of first aid is to improve the general condition of the patient in preparation for further medical treatment.

(5) **To assist the doctor.** When a doctor has been obtained, the first-aider may still be able to supply valuable help. He will be able to describe the history of the accident, the injuries which the patient has sustained and the treatment which has already been undertaken. He may also be required to assist in subsequent treatment.

(6) **To obtain understanding.** Besides being able to provide help to a patient in an emergency, the first-aider gains a personal advantage through his study of first aid. Thus, he obtains a good introduction to medical science which enables him to understand some of the problems of health and of disease.

Minor Ailments.—It must not be thought that the scope of first aid is confined to the treatment of the more serious injuries such as severe bleeding and broken bones. There is an even larger field for useful work in the treatment of the so-called minor ailments, such as faints, sprains, dog-bites, etc., neglect of which may have far-reaching and unpleasant consequences.

For all these reasons the value of first aid has now become generally recognised, and possession of a certificate of efficiency is considered an essential qualification in many branches of employment.

Plan of Study.—The student who desires to become efficient must study his subject from several aspects. He must possess a knowledge of elementary anatomy and physiology—i.e. the construction and method of working of the human body. He must also acquire a good theoretical knowledge of first aid, so that he may recognise quickly and accurately the injuries which a patient

has sustained, or possibly even the illness from which he is suffering. Much practice in methods of bandaging, etc., is also essential, because treatment for an accident must be applied quickly and with efficiency if suffering and complications are to be avoided.

Qualifications.—In addition to theoretical knowledge and efficiency in practical work, there are certain personal qualities which every first-aider should cultivate :

(1) **Organizing Ability.**—Many points, apart from actual treatment, must be considered when dealing with an accident. These include control of bystanders, sending messages, and other administrative details. These points, which will be considered later, call for organising ability.

(2) **Self-confidence.**—Many would-be first-aiders are deterred from their desire to study through fear that they will be unable to remain calm at an accident. A calm manner can be cultivated, and it will be found that the fear of nervousness soon passes off with a little experience.

(3) **Sympathy.**—Every victim of an accident, if conscious, suffers both mentally from the shock of its occurrence and physically from the pain which it causes. A few words of sympathy, reassurance and encouragement are often valuable aids to treatment.

(4) **Tact.**—This is essential when dealing with the patient or his relatives. The patient himself is often apprehensive of the severity of his injuries and may require tactful reassurance. On the other hand, there are some patients who, although seriously injured, may show signs of being venturesome. It is the duty of the first-aider to judge each individual case on its own merits. He may often be called upon to resolve a difficult situation requiring much tact and patience.

(5) **Judgment and Thought.**—First aid cannot be learnt entirely from a textbook ; nor can it be practised by rule of thumb. One of the most important qualities which the first-aider must possess is the ability to think ; this enables him to make a good judgment. He must also be prepared to alter his methods to meet the requirements of each individual case and not necessarily keep to the word of the book.

Thus, for example, if a patient breaks his wrist within a few yards of his own home, it may be wiser to place the arm in a sling, take the patient home, and await the arrival of a doctor rather than adopt the textbook treatment. This measure, however, might be dangerous in other circumstances—*e.g.* if the patient had to be taken a long distance to shelter.

Other types of accident and illness occur in which first aid should be reduced to a minimum. It will be realised later, for instance, that in certain cases of burns it is far more important to treat shock than the injuries themselves. The first-aider with a good judgment will appreciate this principle, and will content himself with applying immediate treatment for shock and removing his patient without delay to the nearest hospital.

Limitations.—It must be clearly understood that first aid has its limitations, and any attempt at more ambitious treatment may easily prove harmful to the patient and throw the whole movement into disrepute. Anyone who undertakes the treatment of even a minor accident assumes responsibility, and one of his chief duties is to provide for medical assistance.

The services of a doctor must be obtained at the earliest possible moment. The layman who attempts to do without professional assistance is not practising true first aid, and may be justly held responsible for any avoidable complications which may subsequently occur.

Moreover, there are certain injuries which should only be treated by medical men; thus, it is far wiser to wait several hours for a doctor than to attempt to remove a piece of grit embedded in the front of the eye. This operation, which requires considerable care and skill, is quite beyond the capacity of a first-aider.

With such reservations as these, however, there is still an enormous field in daily life for valuable and useful service in the practice of first aid.

General Principles.—There are certain general principles of first aid which should always be borne in mind. Some of these may be conveniently discussed at this stage, although they will be mentioned later, probably on many occasions, throughout this book.

Primary Duties to a Patient.—The primary duties of a first-aiders towards his patient are :

- (a) To provide for medical aid as quickly as possible.
- (b) If it is impossible to obtain a doctor, to remove the patient without delay to a suitable centre—*e.g.* a hospital—where professional assistance can be obtained.

Gentle Handling.—No trained person should ever be guilty of rough or careless handling of a patient ; yet this has formed a common complaint against first-aiders in the past.

When it is necessary to move a patient or an injured part, the movement must be steady—a sudden jerk may cause complications as well as increased pain.

Throughout his work the first-aiders must learn to handle his patient as gently and as little as possible. This principle applies even for minor injuries.

Breathing.—Every patient must be placed in such a position that he can breathe easily. Bystanders should be prevented from crowding round, and, when necessary, extra air may be supplied by opening windows.

Tight clothing (when present) round the neck, chest, and waist must be undone in all but the slightest cases.

Clothing.—Unnecessary removal of clothing should be avoided, because exposure increases shock. When it is essential to remove clothing, the first-aiders must act tactfully and prevent exposure of the body as far as possible. If it becomes necessary to cut clothing, permission should be obtained whenever possible.

Clothing must be removed gently to avoid hurting the injured part as follows :

Coats.—The coat should be drawn backwards on to the shoulders and the sound arm removed first from its sleeve ; it will then often be possible to slip off the remainder of the coat without moving the injured limb.

Trousers.—When necessary, the leg of the trousers should be slit up its outer seam.

Boots and Shoes.—The foot and ankle must be steadied during removal ; the laces can be undone or cut through.

Shirts, Vests, etc.—The neck of the shirt should be pulled over the head and the sound arm removed first, as in removal of the coat ; if necessary, these garments can be slit down the front.

Position of Patient.—The patient should be placed in a comfortable position, preferably lying down. The head should be supported on a pillow when possible.

Students must also remember to make their patients comfortable when undertaking exercises in practical classes.

Shock.—Every patient must be assumed to be suffering from a certain amount of shock, and treatment must always be adopted for this condition.

Death.—It is not the duty of a first-aider to conclude that death has occurred. Sometimes it is extremely difficult for a doctor to distinguish severe cases of shock and even fainting from death. In such cases the pulse may have disappeared and breathing have stopped. Yet prompt treatment may save the patient's life.

Until the arrival of a doctor, the first-aider must make it a rule to treat every patient as if he were alive. In the exceptional case, when it is impossible to obtain a doctor, treatment must be continued until several of the positive signs of death make their appearance (see p. 167).

CHAPTER II

CASE-TAKING

WHEN a first-aider is called to an accident, there are many important details which he must consider immediately, and the method he adopts may considerably influence the future welfare of his patient.

The usual procedure which is undertaken when dealing with an accident is called "case-taking". This includes not only the immediate actions of the first-aider on arrival at the case, but

also discovering the injuries which have been sustained and, in general, organising the treatment.

Environment.—It must be clearly understood, however, that prevailing circumstances may completely alter the normal method of case-taking.

When an accident occurs at home, in a school, or similar institution, there are usually ample facilities for treatment. There is then no need for hurry, and case-taking can be undertaken methodically, as described in this chapter.

If, however, conditions are unfavourable—*e.g.* in street accidents—the procedure must be considerably altered, because delay may prove harmful to the patient.

It will be appreciated, therefore, that the routine method of case-taking must be modified according to the circumstances and surroundings of the accident; for this reason, the first-aider must cultivate organising ability and be prepared to make quick decisions, changing his methods to suit the conditions under which he is working.

The principles of case-taking, however, must be clearly understood, and will be discussed under their appropriate headings.

Approach.—When the first-aider hears that an accident has occurred and that his services may be of value, he will naturally make his way to the patient as quickly as possible. But in doing so he must bear in mind his own physical capabilities, because if he arrives breathless at the accident his efficiency may be temporarily impaired. Hence a more deliberate approach is often desirable, particularly for those first-aiders who are inexperienced or nervous in action.

Arrival.—On arrival at the accident, the first-aider should warn his patient to lie still and should ask the bystanders to co-operate in preventing him from moving. The importance of lying still after an accident must be emphasised, because, if bones have been broken, movement of the patient before treatment has been undertaken may cause serious complications. Unfortunately, it is a natural tendency to try to help a patient to his feet after an accident: this is an error which cannot be too strongly deprecated.

Permission to Attend.—Whenever possible, permission should

be obtained from the patient before treatment is begun. The first-aiders should tactfully explain that he is in a position to offer assistance if his services are desired.

Permission should always be asked in minor cases, because treatment of a patient against his will may render the first-aiders liable to legal proceedings.

In serious cases, however, when there is urgency and it is obvious that the patient does not appreciate the dangers which are present, the first-aiders may proceed to treatment without permission, so long as he is able to justify his decision if called upon to do so at a later date.

Immediate Examination.—On arrival at the accident, the first-aiders should halt a few paces away from his patient so that he can obtain a general outline of all the circumstances connected with the accident. He should notice particularly the need for life-saving measures. If, for example, breathing has stopped or severe bleeding is present, immediate treatment must be undertaken if life is to be saved.

A common error on arrival is for the first-aiders to kneel down immediately at the patient's head and waste valuable seconds undoing his collar and tie, testing consciousness, etc., while all this time blood may be escaping unnoticed from another part of the body.

A short examination from a distance prevents the risk of failing to notice a dangerous condition; it also provides an opportunity for noticing other important details which are connected with the surroundings of the accident.

Removal of Cause.—In many cases the cause of the accident may still be present and continuing to exert harmful effects. Thus, part of a motor-car may still be in contact with the patient, and even if it is not causing further injury, it may prevent free access to the case. Therefore, whenever possible, the cause of the accident should be removed without delay.

Sometimes, however, it is not possible to do this—*e.g.* when fire is present, or when the accident has been caused by heavy machinery. It is then necessary to move the patient; but, if practicable, a quick examination should first be made to detect the injuries present, so that special care can be taken to prevent complications as the patient is being moved.