Clinical Examination

Edited by
John Macleod

Foreword by Sir Stanley Davidson

Third Edition

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A Textbook for Students and Doctors by Teachers of the Edinburgh Medical School

Editor

JOHN MACLEOD

Foreword by

SIR STANLEY DAVIDSON

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Foreword

A sound basis for treatment and a guide to prognosis can be provided only if the correct diagnosis is established. This in turn depends on a properly conducted clinical examination, supplemented where necessary by certain specialised procedures. This book is concerned with the taking of the history, the making of the physical examination and the evaluation of the information obtained.

Written in clear and concise language and in a style which holds the reader's interest, its aim is to provide the clinician with an up-to-date account of those methods of clinical examination which have proved to be of value. That this desirable objective has been fully attained is indeed not surprising because the book is written by a team of eight men in the prime of life who are close friends and who have had many years' experience of teaching undergraduate and postgraduate students. They are colleagues on the staffs of the Western and Northern General Hospitals, institutions which have played a notable part in maintaining and enhancing the reputation of the Edinburgh Medical School since their establishment as centres of teaching and research in 1946.

I can recommend this book unreservedly to medical students and general practitioners, and I also believe that many physicians working in hospitals would obtain from it both benefit and enjoyment.

STANLEY DAVIDSON.

1964.

'My first point is therefore this, that in any branch of university education, including medical education, we should aim at using the methods of education rather than instruction. We must teach the student how to collect the facts, to verify them, to assign a value to them, and how to draw conclusions from them and test those conclusions; in short, how to form a judgement. As Karl Pearson said, "the true aim of the teacher should be to impart an appreciation of method rather than a knowledge of facts," for method is remembered when facts have been forgotten, and method can be used in a new situation where there are no, or too few, facts. The student learns how to learn and can go on acquiring knowledge for the rest of his life.'

SIR GEORGE PICKERING

'Medicine's Challenge to the Educator.

British Medical Journal, 1958.

Vol. 2, p. 1117.

Preface to the Third Edition

When *Clinical Examination* was first published in 1964 we did not anticipate that a third edition would be required less than nine years later, but we have found it necessary to keep our clinical methods, as well as the description of them, under constant review at a time when advances in the practice of medicine are so profound. In particular we have been stimulated to do this by constructive criticism from colleagues and students all over the world. Change has also been forced upon us by the untimely death of Dr J. B. Stanton, one of the eight original contributors. For one or more of these reasons there are four principal alterations in this edition.

In the first place the 'Examination of the Psychological State' has been rewritten by Professors H. J. Walton and G. M. Carstairs. As this procedure is, in some degree, part of the assessment of every patient, it now follows the introductory chapter with which it is closely integrated. Secondly the 'Examination of the Nervous System' has been rewritten by Dr Clifford Mawdsley. In order to meet the needs of medical students who find this a difficult component of the physical examination, more space has been devoted to the anatomical and physiological background and to the interpretation of the tests. Thirdly as Sir Stanley Davidson has deputed to me the editorship of *The Principles and Practice of Medicine,* which is now in its tenth edition, the opportunity has been taken to increase the complementary role of the two textbooks. Finally the book has been extensively revised and in this regard we are particularly indebted to Dr J. F. Munro who made many helpful suggestions about the book as a whole and to Dr N. C. Allan who revised the section on examination of the blood.

The principles which guided us in earlier editions, as described in the preface to the first edition, have stood the test of time. We re-affirm the necessity for obtaining valid evidence by reliable methods and for thinking in terms of clinical science.

Edinburgh, 1973.

JOHN MACLEOD.

Notes on Previous Editions

The aim of this textbook is to give an account of the procedures carried out by a doctor examining a patient in the consulting room or at the bedside. We have attempted to describe the principles on which these procedures are founded and we have also endeavoured to analyse the meaning of the information obtained in this way.

The stimulus to write this book was provided by the need to reassess the value of the traditional methods of physical examination when seen in the light of new knowledge acquired by modern investigative techniques. We have endeavoured to retain those procedures which have maintained their value, while discarding the superfluous and incorporating important advances. The material included is based on the experience of the authors as clinicians and as teachers of undergraduates and postgraduates. The group of contributors includes general physicians, a cardiologist, a chest physician, an endocrinologist, a neurologist, an orthopaedic surgeon and a paediatrician. While each individual's main responsibilities vary to some extent between university commitments and hospital and private practice, the authors are accustomed to working together. Although most sections have been largely the responsibility of one person, each has been supported by a wealth of constructive criticism from his colleagues. In this way the concepts of the specialist have been combined with those of the general physician to produce a more balanced point of view than might otherwise have emerged.

In general each chapter conforms to a uniform plan. Starting with the history the reader is shown how to elicit and evaluate cardinal symptoms. The methods of physical examination are then described and the significance of the findings is discussed. Finally in some instances a brief indication is given of the type of further investigation which may be required as a logical extension of the clinical examination.

The book is intended primarily for medical students but we hope that it will also be of value to general practitioners and to the potential specialist. The junior student should not be intimidated by references to diseases with which he is as yet unfamiliar. He must face the necessity of meeting them sooner or later. Reference has constantly been made to anatomy, physiology and pathology in an endeavour to emphasise the concept of clinical medicine as an applied science. If we have succeeded in creating an urge to comprehend instead of a sense of obligation to accumulate facts, we shall feel amply rewarded.

In the second edition Professor Sir James Fraser joined the contributors to give more prominence to the point of view of the general surgeon. Dr J. S. Robson wrote a new chapter on simple laboratory tests, which constitute an integral part of clinical examination and which should be within the capacity of any doctor.

Acknowledgements

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It is a special pleasure to acknowledge all the help we have had from our own publishers and in particular from Miss Mary Emmerson in the preparation of the manuscript and the compilation of the index.

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CHAPTER 1

The History and the General Principles Governing the Physical Examination

> 'And I place the interrogation of the patient himself first, since in this way you can learn how far his mind is healthy or otherwise; also his physical strength and weakness, and you can get some idea of the disease and the part affected.'
>
> RUFUS OF EPHESUS (*c.* A.D. 100)

The clinical study of disease is founded on two essential processes, the history of the patient's disability, and the doctor's physical examination. The term 'clinical examination' comprises both these components. Although in practice the two may be intermingled, an adequate clinical examination is based on a methodical and comprehensive routine to which the student should closely adhere, particularly throughout his apprenticeship. Flexibility will come with experience. This chapter gives an account of the sequence which should normally be followed by the doctor in the consulting-room or at the bedside.

THE HISTORY

As Rufus of Ephesus pointed out almost 2000 years ago, the history is usually the most valuable part of the clinical examination in leading to a diagnosis. Every medical student is, rightly, taught this—and then spends the remainder of his life in practice relearning the lesson. The doctor's first task is to listen and observe, not only to obtain information about the current problem but also to understand the patient as a person and the life situation in which he finds himself.

The art of obtaining an accurate history expeditiously can be acquired and developed with practice, provided it is founded on certain fundamentals, the first of which must be a satisfactory approach to the patient. Secondly, ample opportunity must be given to the patient to tell his story. Thirdly, a competent interrogation must be made by the doctor to clarify the patient's account and, when indicated, to extract information regarding previous health, family and social and personal matters. The same sequence is followed with almost every patient, the emphasis changing in accordance with the current problem. When the basic technique has been acquired, skill will improve with experience until an efficient routine is at the doctor's command, flexible enough to deal with the manifold vagaries of clinical practice. Impatience is the commonest cause of failure.

The Approach to the Patient

The individual who is ill and who is possibly apprehensive when confronted by a doctor is readily disturbed if first impressions are bad, for example, if the doctor appears indifferent or unsympathetic and an emotional barrier to effective communication is erected. It is, therefore, essential that the patient is put at ease by being given a friendly greeting, and made to feel that he is the centre of interest. Moreover, it should become second nature for the doctor to have all his senses alert particularly at the outset of the interview for the clinical examination begins not with the elicitation of the history, but with the interpretation of all the impressions made by the patient from the moment of first contact with the doctor. In the surgery or in the out-patient department it is easy to acquire the bad habit of completing notes about the previous case at the crucial moment when the newcomer should be welcomed. The patient in hospital may be embarrassed by not knowing to whom he is speaking, and accordingly appropriate introductions should be made, for example by medical students. At the outset the doctor should do the talking while the patient adapts himself to the situation. Initial remarks should be about impersonal matters; a minute or so can be spent with profit in this way to help eliminate any preliminary diffidence. Any impression of hurry on the doctor's part must be avoided. One can then proceed to obtain particulars about name, address and occupation, and conversation can readily be built round the last while confidence accrues. Addressing the patient by his or her name is good for the individual's self-esteem and for establishing a less impersonal relationship—a discreet glance at the notes may be necessary to prevent an embarrassing mistake. It is also wise to be sure whether it is 'Miss' or 'Mrs.'. A satisfactory initial relationship has been achieved when the patient and the doctor have begun to get to know each other. Conditions should then be favourable for the patient to express himself.

The Patient's Account of the Current Illness

The patient is now given an opportunity to tell his story in his own way, and in order to encourage him to do so the initial question must be of a general nature, e.g. 'Now please tell me about your trouble'. If he has difficulty in starting, ask 'What was the first thing you felt wrong?', followed by 'What happened next?'. As the history proceeds, the doctor should learn much about the symptomatology, the patient's intellectual capacity and his emotional reaction to his troubles. Premature interruption must be avoided; learning to listen comes with experience and patience and is particularly important when dealing with a psychological problem (p. 17). Further action depends on the initial assessment of the personality of the patient. While the possibilities are innumerable, certain situations commonly recur;

for example, there is the intelligent person who gives a clear unemotional account, the 'good witness'. This kind of description often points straight to the diagnosis with little further help from the doctor. The inarticulate person will require patient handling and help by the posing of very simple questions, whereas the verbose individual, giving irrelevant details, will need guidance to direct his attention to essentials; even so, there is still a danger of premature interruption by the doctor. The quasi-knowledgeable individual, in relation to medical matters, tends to give his own diagnosis rather than an account of his symptoms and speaks in terms of 'flu', 'gastritis', 'rheumatism'. 'migraine', etc. It is important not to accept such statements without reviewing their basis. The emotionally disturbed patient, worried by his illness or frightened in a doctor's presence, must be handled with sympathy, but the doctor must remain alert to detect sources of psychological stress which may require elucidation later. Geriatric patients are liable to give the keen young doctor the answer they think will please him; deafness or early dementia may add to the misunderstanding, particularly if the doctor has failed to appreciate that the elderly patient's mental functions are impaired. Timidity, guilt or fear of disease may lead to information being suppressed. In contrast, symptoms may be exaggerated in an attempt to ensure attention. Wilful deceit is rare except by alcoholics and drug addicts; the latter are often expert at faking symptoms, as are patients with Munchausen's disease whose motive is to gain admission to one hospital after another on the basis of a convincing but mendacious tale of illness. Other examples of personality disorder and sociopathy are described on page 26. In Trousseau's words, *'Il n'y a pas de maladies; il n'y a que des malades.'*

Interrogation by the Doctor

1. The Current Illness. It is first necessary to clarify the patient's account to ensure that all the symptoms have been elicited and to evaluate them. The art of cross-examination, like the preceding technique, is also one which develops with practice, provided certain principles are observed. Questions should be formulated simply and clearly. When a satisfactory answer has been obtained, the same question should not be repeated, thoughtlessly, later. This usually results from inattention and gives a poor impression of the efficiency of the examiner. However, it may sometimes be necessary deliberately to pose the question again, possibly in a different way to obtain a more illuminating account, or if the subsequent interrogation throws doubt on the accuracy of the original answer. Many individuals are very open to suggestion and unintentionally provide erroneous information if a certain answer would appear to be expected. Biased and premature questions in conjunction with a perplexed patient open to suggestion and anxious to help the doctor, may result in a very distorted history. It is therefore important, particularly while the basic facts are being elicited, not to ask leading questions which may act as guides to the answers desired by the doctor. Later in the proceedings,

however, it may be necessary to use such questions to elucidate the patient's account provided the fallacies involved are kept in mind.

The principal symptoms must be thoroughly analysed. Examples of this process are given in Chapter 3, but basically the doctor must satisfy himself that he has accurate information regarding the time and mode of onset of any important symptom, the circumstances in which it occurred, its duration and the existence of any ameliorating or aggravating factors. The relationship to other symptoms must be defined and a chronological account obtained of the development of the illness from the first symptom to the date of interview. If possible, exact dates should be recorded rather than imprecise statements such as 'last Saturday' or 'a few weeks ago'. It may be helpful to reproduce the symptoms and observe what happens, for example the patient who complains of breathlessness on exertion may be studied as he goes upstairs. If there is difficulty in describing a recurrent symptom of varying severity, the position may be clarified by asking for an account of the first or of the most severe attack. It is often necessary to record negative findings, e.g. cough but no sputum, or breathlessness but no cough.

Systematic Enquiry. Drugs? Allergy? When a clear record has been obtained of the current complaint it is advisable to make specific enquiries about the presence or absence of cardinal symptoms suggestive of involvement of various systems, such as cough, breathlessness, indigestion (the imprecise word is deliberately used to broaden the scope), bowel, urinary or menstrual troubles, pain, insomnia or change in weight. It is essential to know about any *drugs* taken on medical advice or otherwise and if the patient is *allergic* to any substance (p. 15). These questions can be asked very quickly and a comprehensive view of the patient's health thus obtained.

Information from a Third Party. It is necessary to obtain information from a relative or friend when the patient is unable to supply it because of immaturity, illness, senility or mental disturbance. Corroboration is often helpful when the patient is a poor historian. Every effort should be made to obtain an account from an eye-witness in the case of a person who has been unconscious or who may be suffering from epilepsy or from other conditions in which knowledge of the patient's behaviour or appearance may be useful. The description from an onlooker of the circumstances in which an injury occurred may be helpful, but in obtaining this evidence from a third party the doctor must be careful not to give to unauthorised persons information which may be confidential or have medico-legal repercussions. Important information is often obtained from relatives by the nursing staff and by social workers, particularly in psychiatric problems.

2. Previous Illness and State of Health. Information should be obtained about previous illnesses, operations and accidents as indicated by the individual problem and preferably in chronological order. The patient may have forgotten about past illness and his memory may be stirred by being asked if he has ever been in hospital or been confined to bed at home. It must be

remembered that the diagnosis supplied by the patient may not be correct, either because of misapprehension, misdiagnosis, or because, in the patient's interests, it had been judged advisable to give him a less harsh explanation; a gastric carcinoma may have been described as an 'ulcer'. The examiner may have to attempt to come to his own conclusions about past episodes based on the patient's description of symptoms and circumstances at the time, but it is salutary to realise that what may now be obvious because of the progress of the disease may have been impossible to diagnose even in the recent past. Frequently patients incriminate an accident as being responsible for subsequent troubles; any claim of this kind must be considered critically. A history of venereal disease may be suppressed, because of a feeling of guilt, and when it is suspected on clinical grounds the individual must be asked, not only about venereal infection, but also about the occurrence of any extramarital sexual intercourse, as the initial disease may have been unnoticed by the patient or suppressed by an antibiotic.

Residence or travel abroad and any illness which occurred may be relevant; a puzzling fever may prove to be due to malaria or amoebiasis contracted outside Britain. Air transport enables vast distances to be covered within the shortest of incubation periods so that almost any infection may be transmitted to an area where it is not normally encountered. Patients will not necessarily mention their journeyings unless specifically asked if they have been abroad. The onus is on the doctor to make the necessary enquiry.

Previous Health. Just as knowledge of previous illness may be necessary in assessing a clinical problem, so also may information about past health. A medical examination for insurance or employment purposes would give a good basis for comparison with the present findings. In all cases it is most helpful to know the date and result of any previous radiological examination, especially of the chest. The films should be reviewed if there is any doubt about the result.

3. Family History. Information regarding the age and health, or cause of the death of the patient's relatives is often valuable. The knowledge that there is a family history of diabetes, ischaemic heart disease, hypertension, gout or an infectious disease such as tuberculosis, should increase the doctor's awareness of the possible presence of such a condition in the patient. The symbols used in the construction of a family tree or pedigree chart are illustrated in Figure 1.

Often there is unwarranted anxiety on the patient's part lest like a parent he may be in the process of developing some potentially crippling disease such as rheumatoid arthritis. Considerable tact may have to be deployed when asking a new patient about features such as alcoholism or mental disorder in a close relative. Overall, however, a display of interest in the welfare of the family usually helps to secure rapport.

At this stage it is usually possible to obtain at least an impression of the individual's personal relationships but enquiry about more intimate matters,

if deemed necessary, is best postponed until after the physical examination when a good measure of confidence should have been established. However, if the patient wishes to unburden himself about emotional disturbances at any phase of the proceedings he should be allowed to do so as the opportunity may not occur again. Sexual problems, a broken marriage, difficulties with elderly relatives living in the same house, problem children or adolescents, or an unhappy childhood are all very potent influences on an individual's well-being. On the other hand, the family may constitute a united group able to give substantial support to any member in difficulty.

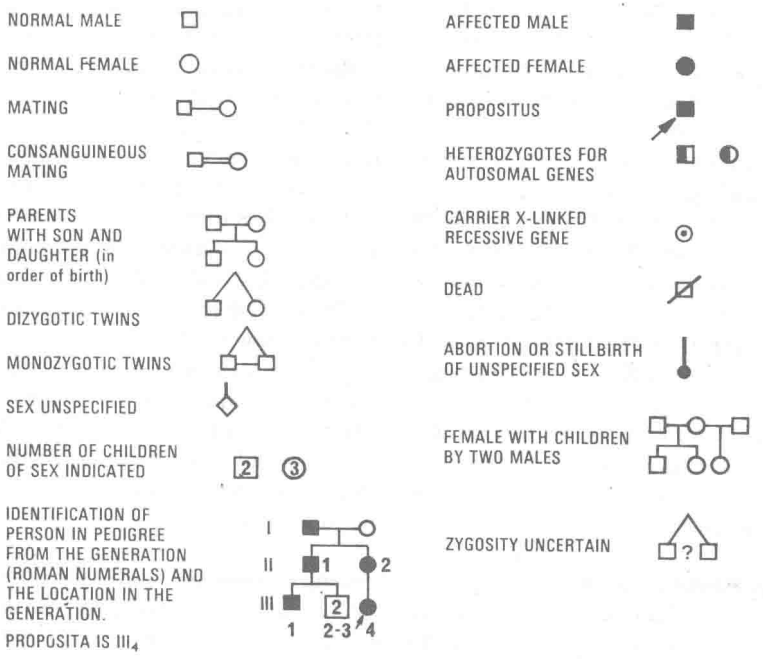

FIG. 1 Symbols used in pedigree charts.

Drawing up a family tree begins with the affected person first found to have the trait (*propositus* if male, *proposita* if female). Thereafter relevant information regarding siblings and all maternal and paternal relatives is included. From *Elements of Medical Genetics*, by A. E. H. Emery. Churchill Livingstone. 1971.

4. Social History. An individual's adaptation to his occupational and social environment may, like family influences, have profound repercussions on his health. Illness may ensue directly as in the case of silicosis or indirectly as in malnutrition; social problems may arise as a result of illness. The doctor working in hospital sees the patient in an artificial setting and it is important for him to have some knowledge of the individual's normal background, not

only in relation to diagnosis, but also in the planning of rehabilitation. Discharge from hospital is not often synonymous with complete recovery. The patient's functional capacity must be assessed and related to his employment, for example in cases of heart or lung disease, return to heavy work or to a polluted atmosphere may be contraindicated. Enquiry should, therefore, be made about home, occupation and personal interests.

As regards the home, it may be necessary to know about the number of rooms and their occupants, the sanitary arrangements, the state of repair of the house and the financial obligations of the residents. Neighbours may create problems or may be very helpful in times of stress. A social worker can often obtain invaluable information by visiting and reporting on home conditions.

It is desirable to know not only the mere fact of the patient's occupation but what it involves. It is good practice to encourage conversation about this at appropriate times during the physical examination. Useful information is obtained, the anxious patient is diverted and the doctor's interest is usually appreciated. Attention should be paid to the congeniality or tedium of the employment, to any occupational hazards, and to stresses imposed by others or by the individual's own ambitions. Frequent change of employment may indicate an inadequate personality. Many married women have a part-time occupation, because of real necessity, because of the need to maintain hire-purchase commitments, or because of boredom at home. The type of work and the reason for undertaking it should be known. It is necessary to have at least some appreciation of the overall economic situation of the patient and his family.

The doctor should also be aware of the patient's personal interests, such as his leisure pursuits, the amount of physical exercise undertaken, and his educational background. Habits as regards food, tobacco and alcohol may have important implications in relations to nutritional problems, lung disease and psychological instability respectively. A dietetic history should be obtained if there is an obvious nutritional abnormality. In most instances a very approximate assessment by the doctor of the patient's food and vitamin intake will suffice but he will not accept the corpulent woman's claim that she eats nothing or the statement by the girl with anorexia nervosa that she eats everything. Deficiencies of substances such as calcium or vitamin C are common in geriatric patients whose accounts of their eating habits may not be corroborated by a neighbour or by evidence obtained from a brief inspection of the larder. Occasionally a precise evaluation by a trained dietician is required, for example in the assessment of an unusual disorder due to vitamin deficiency.

Gradually a picture should emerge of the individual as a whole in relation to his background and with discrimination the details can be elaborated as demanded by the current problem.

5. The Psychological History. In all illness it is necessary to evaluate the part played by psychological factors. The account of the history and the manner in which it is delivered usually reveal much about the patient's