How to Examine the Nervous System
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fourth edition

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With a Foreword by
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This book is dedicated to the memory and influences of two men:

J.D. Adamson, MD (Manitoba), MRCP (Edinburgh), FRCP (Canada), Professor and Chairman, Department of Medicine, University of Manitoba, 1939–1951

L.G. Bell, OC, MBE, MD (Manitoba), LLD (Queens University, Kingston, Ontario), FRCP (London and Canada), FACP, Professor and Chairman, Department of Medicine, University of Manitoba, 1951–1964

I had the good luck to be taught by both of these doctors. J.D. Adamson could take a better history and elicit more information from a patient than anyone I have ever met. He considered every new patient a fascinating storyteller. He asked few questions, managed to keep the patient on the subject, and was completely enthralled as the history unwound. He knew the words and music of disease.

L.G. Bell could see more in 10 seconds at the bedside and do a better physical examination than anyone else. He had a great ability to find, see, and feel (or maybe smell) abnormal physical signs. One learned as much from watching him examine as from listening to J.D. Adamson listen.

Both of these men taught hundreds of students, interns, and residents. Each had great respect for the skills of the other. They were cultured, well-read, humorous humans and great bedside doctors who dearly loved medicine and teaching.

A man does not learn to understand anything unless he loves it.—Goethe
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Robert T. Ross is one of the most respected neurologists in North America. He established and led the Department of Neurology at the University of Manitoba for many years. He founded the *Canadian Journal of Neurological Sciences* in 1974 and was editor-in-chief until 1981. He has written and published 88 papers on clinical problems in neurology. He has been made an Honorary Life Member of the Canadian Neurological Society and was given an Honorary Degree by the University of Manitoba. He has also been awarded the Order of Canada.

Dr. Ross knows how to examine patients and he knows how to teach medical students, especially those who are just beginning to learn neurology. They are the ones most likely to be perplexed by the apparent complexity of the neurological examination. Dr. Ross has come to their rescue with this book.

With simple and direct writing, and numerous illustrations that serve the purpose, he shows that examination is not all that difficult, that it can make sense, and that it can be done in a few minutes. Once the student feels some confidence, the examination can bring pleasure and a sense of achievement. The student then becomes part of the health care team in support of the patients.

Dr. Ross’ skilled exposition has made the first three editions of this book a success and it has been the recommended text in many medical schools. Any book that has gone through three editions must be on the right track, and this fourth edition keeps up the pace.

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The more resources we have, the more complex they are, the greater are the demands upon our clinical skill. These resources are calls upon judgment and not substitutes for it. Do not, therefore, scorn clinical examination; learn it sufficiently to get from it all it holds, and gain in the confidence it merits.

—Sir Francis Walshe, 1952

Technical advances have made diagnoses quicker, safer, and more accurate. Sometimes it appears that careful history taking and examination are less important than knowing which test to order.

However, the technology is expensive and access is limited. As medical costs are increasingly scrutinized by the paying agencies, private or public, there will be limitations on both diagnostic investigations and hospital admissions.

For patients and doctors in smaller centers, limitations already exist. These conditions make a careful history and examination essential to the intelligent care of the sick and prerequisites for ordering tests. The practice of diagnostic medicine is not simply ‘scene’ recognition plus knowing where to point the technology. If it ever becomes this, a clerk—and eventually a machine—will be able to do it. Therefore, I suggest that you learn how to listen to and examine patients thoroughly and confidently. It is the most precious and durable skill you have; the more you use it, the better it becomes. It is unique.

One learns by doing the thing; for though you think you know it, you have no certainty until you try.

—Sophocles

In the examination of sick people a technique that elicits physical signs, and the ability to interpret those signs, are required.

Interpreting physical signs is one of the interesting parts of neurology. The process will not work if abnormal signs have been missed because of faulty technique, or if minor variations within the limits of normal are considered as firm abnormalities. Each year more students must be taught more subjects as the knowledge explosion continues. Only a small amount of time can be spent on the method of any physical examination. Therefore, learn a reliable technique quickly.
This book offers some anatomical and a smaller number of pathological possibilities that may explain a physical sign. It does not consist of a list of, for example, all the possible causes of an absent corneal reflex, and is not a small textbook of neurological diseases.

Teach and be taught is a ground rule that most of us will try to observe all of our professional lives. Every doctor and medical student owes a debt to patients, who are an essential part of the teaching situation. They allow us to teach ‘on’ them and around them, and they tolerate several history takings and physical examinations, usually for the benefit of someone else.

At all times one must treat patients with respect and kindness. When you enter the room, identify yourself and tell the patient why you are there. Do not persist with the history or examination past the point at which the patient is tired or uncooperative. Patients are most cooperative with students and doctors who are clean, neat, and polite.

When examining a patient, stand on the right side of the bed (or on the left if you are left-handed). After you have identified yourself, level the bed; that is, if the head or knee break is cranked up, flatten it. Then raise the bed as high as it will go. You can work better with the bed 30 inches from the floor.

Spend 60–75% of the time devoted to any one patient on history taking and the remainder on the physical examination. Have a system of examination and learn to follow it in the same way each time.

Do not be upset by the transient nature of some physical signs. You may see a patient with a slightly enlarged left pupil and explosively hyperactive tendon reflexes in the right arm and leg and a right extensor plantar response. Examination a short while later shows that the pupils and tendon reflexes are equal and both plantar responses are flexor. Both examinations were valid. Few physical signs of acute diseases of the nervous system are fixed. Papilledema is a notable exception. If it was present yesterday, it will be there today, tomorrow, and the day after. Almost all other signs can change hourly or daily.

R. T. Ross, CM, MD, DSc, FRCP
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