Training in Cardiology

HANS H. HECHT, M.D., F.C.C.P.*
Salt Lake City, Utah

The evergrowing ramifications of present day medical specialization though it has raised the quality of medical care, has also produced men who "know more and more about less and less." The field of heart and circulation alone nowadays requires subspecialists in peripheral vascular disease, in hypertension, in congenital heart disease, in pediatric cardiology; it has produced electrocardiographers, vectorcardiographers, ballistocardiographers, hemodynamic clinicians, electrolyte and renal physiologists. It is a rare institution indeed where, in cardiology alone, an attempt is made to provide the proper balance of all forces and it is a rarer person yet whose vision has escaped this specialistic myopia in cardiology. If he has, he is generally frowned upon as a jack of all trades who would have done better to continue his earlier studies on the left atrial electrocardiogram. This trend toward specialism and subspecialism is not confined, of course, to this field but is general. It has its origin in the ever expanding horizon of medical knowledge. Almost by necessity the present requirements of medical knowledge leave the student graduating from medical school in a bewildered state of half education and with his training largely incomplete.

Postgraduate instruction in cardiology, therefore, begins with graduation from medical school. Even at best little more has been accomplished during the preceding four years than to teach the techniques of examination and the significance of history taking and of physical signs. There has been some integration of laboratory procedures with a general tendency of over-evaluation of the latter with respect to the former both by the teacher and by the student. The training in basic medical science has largely been forgotten and rightly there has been little emphasis on treatment at this time.

The first step in postgraduate training is achieved during the internship. In this connection, a rotating internship of 12 months particularly in a private hospital is often of no value since it provides little more and often less than an undergraduate clerkship. Rotating internships in large charity institutions, on the other hand, are generally more rewarding because of the considerable responsibilities usually placed upon the ward physician and his frequent need for independent decisions. A straight 12 months internship in medicine is to be preferred, if possible at a teaching hospital, because it lays the background for medical experience and because it teaches practical therapy based on fundamental physiologic and biochemical prin-

*Department of Medicine, University of Utah College of Medicine, Salt Lake City, Utah.

The eleventh in a series of articles prepared under the sponsorship of the Council on Undergraduate Medical Education of the American College of Chest Physicians.
ciples. Teaching the "Art of medicine" can be learned on the ward as well and as effectively as in a private room, and the clinical aspects of heart disease and bedside diagnostic techniques can be refined and enlarged by conscientious visiting staffmen to an equal or better degree than by the overburdened and hurried practicing physician.

The second step consists of acquainting the budding internist who by now has advanced to an assistant residency with the special procedures in the diagnosis of cardiovascular disorders. By now, he has had some exposure to cardiac radiology, electrocardiography and to a catheterization laboratory, to name the most important tools. The practice of attending short intensive courses in special subjects (such as electrocardiography) is to be discouraged except as a refresher for the already experienced since even the best of these are quite ineffective on any level and often lull the participant into a false sense of security. After some exposure to these techniques during the assistant residency, one full year spent in a cardiovascular laboratory as an active member of the team will usually provide an adequate background if the laboratory can offer experience in all major fields of cardiology, and if the instruction stresses basic physiological principles. If such a laboratory is directed on a strictly clinical level, additional training in a department of physiology, biophysics or perhaps pharmacology becomes essential. As a rough guide, six months should be spent in what might be termed applied electrophysiology, and six months in the pursuit of hemodynamic studies. In order to obtain a balanced training period, it is important that the student maintain a continuous contact with general medicine throughout this year, by working one or two half days in a general medical clinic, by attending lectures and seminars on a variety of clinical and preclinical subjects, not concerned with cardiology, and whenever possible by actively participating in medical ward teaching. Further clinical bedside experience usually comes as the natural consequence by contact with the senior men of this specialty group.

At the end of this year such a fellow has just become a useful member of the unit and more likely than not he will be asked to continue. If he does, he must try his hand in active independent investigative pursuits, and now the machinery is set in motion which will test him as a future clinical research worker. He often decides, however, to return to another year of medical residency and then he takes the "plunge" into practice.

The third phase continues for the rest of his life in a permanent struggle to keep abreast of the ever changing aspects of the field. Reading a journal is out of fashion and very few practicing cardiologists take the leisure to even digest the journals of their own special field of interest. Since time is short he is best advised to read one journal well, and this should be one devoted to internal medicine. Important advances of lasting value will sooner or later find their way into this channel.

Once or twice a year he should attend a formal course or a formal meeting. Such events generally feature formal lectures or "papers," round table discussions, and occasionally practice or laboratory sessions. Of these, the formal papers are usually least instructive unless they are presented by
skillful "professional" teachers. They are likely to be monotonous and are confined to one man's view. On the other hand, round table discussions—often with question and answer periods—are generally more rewarding, since a topic can be viewed from all angles. This usually results in a satisfactory condensation of the present day knowledge concerning the subject of the discussion, particularly if the participants are chosen from a variety of disciplines. Such periods should be long, to allow for all possible contingencies and they are only effective if all members of the panel clearly understand the subjects and the ramifications that are to be covered. Frequent interplay among the discussors themselves or with discussors in the audience is desirable. Too frequently, such meetings bog down in irrelevant details, the result of poor planning. With audience participation such sessions can be far more instructive than formal presentations occupying a similar block of time.

The specialists who really desire information concerning present day investigative activities should not look to college meetings but should attend the fall or winter session of the Western, Southern, or Central Societies for Clinical Investigation, or to the spring meetings of the American Society for Clinical Investigation and the American Association of Physicians, all of which are open to everyone. Here the results of up to date clinical and experimental research are being presented in short presentations which in general are far more original and rewarding than formal, often already second hand orations at various college meetings. The ultimate of detailed specialistic information is available at the annual meeting of the Federation of American Societies for Experimental Biology ("Federation Meetings"), or the fall meeting of their component societies (Physiological Society, Society for Experimental Therapeutics, etc.).

In summary, postgraduate training in cardiology should focus on (a) a year or two of full time training in a cardiovascular laboratory, equipped to provide instruction in applied electrophysiology, (b) postgraduate course work with emphasis on round table discussion, (c) short intensive training sessions in small groups, covering a subject completely by lecture-demonstration and by practice.