ing Doppler studies and colour flow mapping, in only six patients. Transoesophageal echocardiography clearly showed paraprothetic leaks in all six patients with a mechanical prosthesis and central leaks due to leaflet dehiscence in all three patients with a bioprosthesis. These results were confirmed by cardiac catheterisation or operation or both in five patients, with two patients proceeding to surgery on the basis of transoesophageal echocardiographic findings alone.

The evaluation of prosthetic mitral valve dysfunction by transthoracic echocardiography is limited by acoustic masking by the prosthesis, whereas the transoesophageal probe can be positioned directly behind the left atrium. The results of transoesophageal echocardiography of mitral prosthetic dysfunction correlate well with surgical findings.^{2,3}

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- 1 Seward JB, Khandheria BK, Oh JK, *et al.* Transoesophageal echocardiography: technique, anatomic correlations, implementation and clinical applications. *Mayo Clin Proc* 1988;63:649-80.
- 2 van den Brink RBA, Visser CA, Basart DCG, Duren JR, de Jong AP, Dunning AJ. Comparison of transthoracic and transoesophageal colour Doppler flow imaging in patients with mechanical prostheses in the mitral valve position. *Am J Cardiol* 1989;63:1471-4.
- 3 Calafiore P, Stewart WJ, Lombardo H, *et al.* Transoesophageal echocardiography in mitral prosthetic dysfunction: echo-surgical correlation [Abstract]. *J Am Coll Cardiol* 1989; 13(suppl A):69A.

Follow up of patients treated with balloon dilatation of the aortic valve

SIR,—Vogel *et al* (1989;62:148-53) used pressure differences measured invasively as peak to peak gradients and non-invasively by Doppler echocardiography as peak instantaneous gradients to evaluate the success of treating aortic valve stenosis by balloon dilatation. They used a regression equation obtained by comparing the results in 12 patients to correct Doppler gradients to the corresponding peak to peak gradients. There are several objections to this approach:

(a) Peak to peak gradients measured by catheterisation and peak instantaneous gradient measured by Doppler echocardiography are conceptually different and the use of regression equations to estimate one from the other is not reliable.¹ Large differences are frequently seen between these two types of gradient.^{2,3}

(b) This difference is often considerable in patients with aortic regurgitation,² which was present in 60% of the patients in this study after the procedure.

(c) The peak instantaneous gradient is always higher than the peak to peak gradient.³ The regression equation applied showed that the inverse was the case in the reported study, indicating less than perfect Doppler echocardiographic recordings.

If pressure gradients are used it is probably more appropriate to estimate either mean gradients or peak instantaneous gradients, both of which can be measured invasively as well as

by Doppler echocardiography. This eliminates the need for a regression equation.

The use of valve areas has been recommended for follow up of adult patients.⁴ This is probably more important in children, in whom the absolute valve areas vary more than in adult patients. I recommend use of the continuity equation to calculate the valve areas according to Skjaerpe *et al*⁵ using the actual transvalvar flow.

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- 1 Currie PJ, Seward JB, Reeder GS, *et al.* Continuous-wave Doppler echocardiographic assessment of severity of calcific aortic stenosis: a simultaneous Doppler-catheter correlative study in 100 adult patients. *Circulation* 1985;71:1162-9.
- 2 Krafchek J, Robertson JH, Radford M, Adams D, Kisslo J. A reconsideration of Doppler assessed gradients in suspected aortic stenosis. *Am Heart J* 1985;110:765-73.
- 3 Hegrenäs L, Hatle L. Aortic stenosis in adults. Non-invasive estimation of pressure differences by continuous wave Doppler echocardiography. *Br Heart J* 1985;54:396-404.
- 4 Vogel JHK, King SB III. *Interventional cardiology. Future directions.* St Louis: CV Mosby, 1989:242.
- 5 Skjaerpe T, Hegrenäs L, Hatle L. Noninvasive estimation of valve area in patients with aortic stenosis by Doppler ultrasound and two dimensional echocardiography. *Circulation* 1985;72:810-8.

This letter was shown to Dr Benson, who replies as follows:

SIR,—Dr Dag Teien's comments prompted us to review our study and we agree with him that peak to peak gradients are poor reflections of instantaneous gradients across the stenosed aortic valve.¹ The instantaneous gradient generally does overestimate the peak to peak gradient. Our regression equation was obtained at the same time as direct measurements of aortic and left ventricular pressures in the catheterisation laboratory. Upon reflection, it has become clear to us that under these conditions alterations in pressure and flow dynamics, systolic ejection times, and arterial compliance can influence the contour of the upstroke of the aortic pressure curve in such a way as to have the peak to peak gradient approach the instantaneous gradient. We no longer use the regression equation to correct the pressure gradient estimate.

Because we did not find depressed pump function in children with aortic stenosis we still regard the left ventricular to aortic gradient as clinically useful in decision making. This view is supported by the studies of the course of untreated aortic stenosis² in the paediatric patients in which peak to peak gradients rather than valve areas were used for assessment. Furthermore, from infancy to adolescence valve areas change considerably, in a non-linear way, which additionally complicates estimating a normal valve area for a given patient.

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- 1 Gordon JB, Folland ED. Analysis of aortic valve gradients by transeptal technique, implications for noninvasive evaluation. *Cathet Cardiovasc Diagn* 1989;17:144-51.
- 2 Wagner HR, Ellison RC, Keane JF, Humphries J, Nadas AS. Clinical course in aortic stenosis. *Circulation* 1977;56:1-47-1-56.

BOOK REVIEWS

Electrocardiography of Arrhythmias. Charles Fisch. (pp 451; £34.03.) Philadelphia and London: Lea and Febiger, 1990. ISBN 0-8121-1265-2.

Does the surfeit of books on basic electrocardiography—introductions, primers, guides and the like—tell us that the subject is unduly difficult to comprehend? Perhaps it is too much taken for granted or possibly ignored by teachers; certainly in the United Kingdom, the home of Waller and Lewis two of the founding fathers, this seems to be so. We have no tradition of the "heart station" with reporting of tracings as a regular feature of hospital life and thus less opportunity for the watching student to learn the practical side of reporting from a mentor.

The European masters did know their fundamentals, however, though many had to make their way to the United States in the years encompassing the second world war. A happy liaison then developed between the rising expert on arrhythmias at the Michael Reese Hospital in Chicago, Louis N Katz, and two immigrants from Prague, Richard Langendorf and Alfred Pick. From them came a succession of papers and books on arrhythmias that have become classics. And now we have a major contribution from one of their foremost disciples and colleagues, Charles Fisch of Indianapolis. Dr Fisch is particularly well known for the courses he conducts at his Krannert Institute; but his programme on advanced arrhythmias on the Sunday before the annual meeting of the American College of Cardiology has brought him to the attention of many more who crowd into the lecture theatre to learn from his incisive analyses carried out in the form of a dialogue with members of a team to whom he shows complex tracings.

Now he has assembled and analysed representative selections from his extensive collection of material in the form of this book. It is not for the beginner, who might be better advised to have at hand and consult something like Dunn and Lipman's *Lipman-Massie Clinical Electrocardiography* (which also reflects the approach of the Chicago school) as well as a recommended introductory text. What Fisch does provide is an essential code book that explains concepts and phenomena which must be understood if the electrocardiographic analysis of arrhythmias—simple as well as complex—is to be more than the memorisation of some patterns.

Here we find descriptions of events that influence the electrocardiogram in classic, important, but too often poorly comprehended ways. The chapter headings indicate that this is no ordinary book that starts at the sinus node and ends with the recovery of the ventricles. They show the reader what is so often missing from the more conventional texts: careful descriptions of, for example, concealed conduction, aberration, and entrance and exit block that make possible understanding of what otherwise seems so difficult to sort out.

Although the text is liberally explained by well annotated examples of conventional elec-

trocardiographic tracings, the author does not hesitate to use intracardiac recordings and monophasic action potentials to assure the validity of his explanations. Citation of references is meticulous and deals appropriately with contemporary sources while not neglecting proper mention of those who first observed and elucidated specific findings. Production is of corresponding quality, the illustrations are clear, and the index is accurate and helpful. Charles Fisch's book is an important contribution to the better recognition of arrhythmias by those who use standard electrocardiographs and is likely to remain an essential tool for all who read tracings showing rhythm disturbances.

DENNIS M KRIKLER

Diseases of the Heart. Eds Desmond G Julian, A John Camm, Kim M Fox, Roger J C Hall, and Philip A Poole-Wilson. (pp 1709, £55.00.) London: Bailliere Tindall, 1989. ISBN 0-7020-1260-2.

Written and edited by master clinicians, this book has a uniform tone—a difficult achievement with more than 62 contributors. As stated in the preface, the editors' guide was Paul Wood's text which "combined lucidity with erudition". The objective seems to have been realised because *Diseases of the Heart* is readable but still learned.

Some texts are so coldly objective that they might have been written by non-clinical scientists; not so *Diseases of the Heart*. It is obvious that the contributors are clinicians with considerable experience and clinical acumen. The text for the most part is not overburdened with reference numbers though the density of references is variable. The impression is of a well considered and balanced viewpoint rather than just a review of published reports. The chapter on chronic heart failure by Professor Philip Poole-Wilson is a particularly good example of this. The chapter on angioplasty is another example of the approach of the experienced teacher-clinician—Dr M F Shiu has been there. He may even have introduced a new word—disobliteration.

There is a great deal more drug information in *Diseases of the Heart* than is usual for standard textbooks. That is a plus. It is somewhat distracting, however, to need to refer quite so frequently to the Appendix, where a brief and useful description of some commonly used cardiovascular drugs is tabulated. Perhaps too much effort was made to avoid repetitiveness by reference to the Appendix rather than by including the material in the relevant chapter. For example, when the use of verapamil in atrial flutter is described it would be useful to read (on the same page) the contraindications, precautions, and drug interactions that should come to mind. Though some cautions are given later when the drug's use for supraventricular tachycardias is discussed, the presentation of drug information in the text is somewhat uneven.

The chapters on non-invasive diagnostic and evaluative technologies are excellent. Magnetic resonance imaging and computed tomography are made as readily understand-

able as possible. Other technologies are also well covered. The chapter on exercise testing is particularly well done in terms of the usefulness of the test in clinical decision-making. Once again, it is the teaching approach that makes the difference.

To assess the usefulness of *Diseases of the Heart* as a practical clinical reference book, I used it on general cardiology teaching rounds for one month, looking up every patient problem as it presented. In almost all cases the material contained in *Diseases of the Heart* was relevant to the management of the patient in question and provided practical guidance. Relevant information about conditions that are encountered less frequently could also be found in most cases. The scope of the text is comprehensive without being overwhelming.

The illustrations are generally good, the print easy to read, and the indexing adequate. Some of the electrocardiograms have been "touched up". For the purist this is somewhat distracting. But if the teaching points are made clearer, the end may justify the means.

Diseases of the Heart is a good and useful text with a strong clinical orientation. The editors achieved all their goals except for one. It is still a heavy book and not exactly "easier to handle". But there is a lot of material to cover, probably more than when Paul Wood's *Diseases of the Heart and Circulation* was written; some might question whether essential and clinically relevant knowledge has increased to the same degree as the size of our texts. Paul Wood compressed large amounts of information to achieve clinical relevance and readability. *Diseases of the Heart* comes as close to replicating his style as any currently available text. Medical students, house officers, and practitioners should all benefit by the experience and insight of the authors of this text.

SUZANNE B KNOEBEL

NOTICES

British Cardiac Society page

The British Cardiac Society has become progressively more active in recent years under the guidance of its council and of successive presidents. I am sure this trend will continue. We have much to do. The problems that face us in 1990 are manifold and impinge on all of us.

The revision of the National Health Service under the terms of the white paper is taking us into uncharted territory which we may regard with apprehension but cannot avoid. Technological advances offer increased prospects of reducing the mortality and morbidity of heart disease, but many patients do not benefit from new treatments because we have too few cardiologists struggling to maintain a service with resources that increasingly fail to match demand. The pattern of training for our

registrars is being revised, with disagreement between those who want faster progression to consultant status and others of us who believe that training programmes must offer sufficient experience in cardiology to produce specialists regarded as competent both here and throughout Europe. The momentous changes in our continent will provide opportunities and challenges that we must be able to meet. But closer liaison in the political arena is accompanied by more diversity professionally, with the risk of fragmentation of interest, as we are all driven to increasing specialisation. Finally, in our country more than most, academic cardiology—and academic medicine in general—feels under siege and must be supported.

In these difficult and exciting times the Cardiac Society must become a more important focus for our activities. From within the society we must learn to communicate more effectively. The officers and the council will want to keep members well informed of their activities and to be responsive to the opinions of all our colleagues in the specialty. We will explore ways of achieving these twin goals, but I hope that one method will be by making more use of our own journal. The editor has agreed to a British Cardiac Society page.

As your president I want to be responsive as well: to new ideas from members, to criticisms, and to requests for help or advice which I can direct appropriately when I cannot address them myself. I hope members will feel free to contact me as often as they feel the urge to do so. The path, I recognise, will not always be smooth. There is a great recipe for avoiding trouble—called inactivity. Neither I nor the council will follow it, and I do not think that you would want us to do so.

DOUGLAS CHAMBERLAIN
President, British Cardiac Society

British Cardiac Society

The Annual Meeting will take place at the Scottish Exhibition Centre, Glasgow, on 30 April to 3 May 1991.

Cardiopulmonary emergencies

The 6th International Symposium on Cardiopulmonary Emergencies will take place in Rotterdam on 26 to 29 November 1990. Inquiries to Dr Omar Prakash, Thorax Centre, Erasmus University, 3000 DR Rotterdam, The Netherlands. Telephone: 31-10-463 5230. Fax: 31-10-463 5240.

Coronary arteriography

The 4th International Symposium on Coronary Arteriography will take place in Rotterdam on 23 to 25 June 1991. Further information from Hoboken Congress Organisation, Erasmus University Rotterdam, PO Box 1738, 3000 DR Rotterdam, The Netherlands. Telephone: 31-10-408 7881/2. Fax: 31-10-436 7271.

Echocardiography

The 9th Symposium on Echocardiography will take place in Rotterdam on 26 to 28 June 1991. Further information from Hoboken Congress Organisation, Erasmus University Rotterdam, PO Box 1738, 3000 DR Rotterdam, The Netherlands. Telephone: 31-10-408 7881/2. Fax: 31-10-436 7271.