ABSTRACTS OF CARDIOLOGY

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The Direct-vision Intracardiac Correction of Congenital Anomalies by Controlled Cross Circulation. Results in Thirty-two Patients with Ventricular Septal defects, Tetralogy of Fallot, and Atrioventricularis Communis Defects. C. W. LILLEHEI, M. COHEN, H. E. WARDEN, and R. L. VARCO. *Surgery*, 38, 11–29, 1955.

The use of controlled cross-circulation methods has enabled operations to be performed under direct vision on the interior of the heart in 32 cases since March, 1954, at the University of Minnesota Hospitals.

The authors calculate that if the patient's heart is to be excluded for any period of time from the circulation, a volume of blood varying between 25 and 40 ml. per kg. body weight per minute has to be circulated, which is considerably less than has previously been thought to be necessary. The principle of the cross-circulation technique employed is to take blood from the descending aorta of a donor through a catheter introduced through the femoral artery and to pass this by means of a pump into the base of the patient's aorta. The return flow from the patient is obtained from both venæ cavæ through catheters inserted through stab wounds in the right atrium; the blood is led to a venous reservoir with an air trap and returned via a second pump to the femoral vein of the donor.

The use of the cross-circulation technique has so far been confined to the surgical correction of congenital abnormalities. Of 22 cases of interventricular septal defect treated, the operation was successful in 15. Of the 7 deaths, 6 occurred in infants under 2 years of age. Six cases of the tetralogy of Fallot have been treated, the stenosis being resected and the ventricular defect being closed at the same time; 3 of these patients survived. Four patients with other congenital defects have also been operated on, 2 surviving. The patients were all grossly incapacitated at the time of operation, which would not have been considered a practical proposition without the cross-circulation technique. The donors suffered no ill-effects except in 2 cases—one in which severe hypotension developed and required cardiac massage, and another in which air embolism produced transient neurological sequelæ.

[This communication is one of the most important contributions yet made to cardiac surgery and should be read in detail by anyone interested in the subject. The question will be raised as to how far and to what extent donors can be used without exposure to risk, but that will be a problem for the individual surgeon.]

T. Holmes Sellors

Cardiac Diagnosis. A Physiologic Approach. ROBERT F. RUSHMER, M.D. Pp. viii and 447. W. B. Saunders Company, London. Price 80s. 6d.

The widespread use of instrumental techniques in the study of the circulatory changes in heart disease has led

to the production of several recent books from American authors on the physiological approach to cardiology. In the present work nearly three-quarters is devoted to basic physiology and there are excellent and critical accounts of the information which may be obtained with these special methods of investigation, with an unusually complete bibliography. The shorter clinical section is much less satisfactory and gives an inadequate account of clinical diagnosis and of the information that can be obtained by clinical examination of the patient. Differential diagnosis is hardly discussed at all and the clinical aspects of hypertension are discussed in less than a page. Although this book cannot be recommended as a practical manual of cardiac diagnosis it does provide one of the best recent accounts of the applied physiology of the circulation.

Graham Hayward

Myokardstoffwechsel und Herztherapie. VON DR. FR. PENDL, Heidenheim/Brenz. 1954. XII, 248 Seiten, 52 Abbildungen, Ganzleinen DM 29.70. GEORG THIEME VERLAG.

This book, entitled Myocardial Metabolism and Cardiac Therapy, aims at linking up what is known about the metabolism of the muscle fibre of the heart, normal and deranged, and some scheme of therapy which will restore the function to health. This is an excellent idea. The first part describes the structure of the cell, as revealed by the most modern techniques; then comes a description of the sources of the cardiac energy. The function of the phosphorus compounds is considered in detail. Then follows a chapter on the influence of the mineral substances such as potassium and calcium. An interesting chapter discusses the pathogenesis of œdema, and another considers protein metabolism and defects in the liver. Sugar metabolism is fully dealt with. This is a thoughtful book and treats an important subject from a modern point of view. The diagrams and print are good. Each section has a complete and useful summary.

Terence East

Levarterenol Bitartrate (Levophed) in the Treatment of Cardiac Arrhythmias. J. T. MCGINN and J. SCHLUGER. *Amer. Heart J.*, 50, 625–633, 1955.

The authors report 6 cases in which supraventricular tachycardia was relieved by the administration of L-nor-adrenaline given intravenously at the rate of 20 to 40 drops per minute of a solution containing 8 to 18 mg. of noradrenaline per litre. The effect of the drug is to increase blood pressure; it is assumed that by this means the vagus nerve is reflexly stimulated and thus causes cardiac slowing. In one case of auricular flutter there was a temporary slowing of the heart rate, but the abnormal rhythm persisted.

H. E. Holling

Precipitation of Ventricular Arrhythmias due to Digitalis by Carbohydrate Administration. E. PAGE. *Amer. J. Med.*, 19, 169, 1955.

Potassium depletion has been shown to predispose to the development of cardiac manifestations of digitalis intoxication and to enhance cardiac arrhythmia when already present. As electrocardiographic changes resembling those of potassium deficiency may occur after meals (and are thought to be due to dietary carbohydrate) the author has investigated the possibility of a relationship between carbohydrate metabolism and clinical digitalis intoxication.

At Birmingham, Alabama, 37 patients receiving digitalis in various dosages were studied in the fasting state, serial electrocardiograms being taken before and after giving a dose of 100 g. of glucose by mouth. Ventricular arrhythmias were precipitated by this procedure on 15 occasions in 7 cases, which are described in some detail.

The clinical implications of these findings, which the author attributes to a reduction in the serum potassium level, are discussed. The possibility that serious arrhythmias may be precipitated in digitalized patients by the administration of carbohydrate is of some importance, especially in cases of vomiting resulting from overdosage of digitalis, in which infusions of glucose solution may be the chief means of sustaining adequate nutrition, and in patients with recent myocardial infarction.

Francis Page

Relaxants and the Human Cardiovascular System. M. JOHNSTONE. *Anaesthesia*, 10, 122, 1955.

To study the effect of relaxant drugs on the cardiovascular system electrocardiograms were obtained during anaesthesia in a number of cases at the Royal Infirmary, Manchester. It was found that normal doses of curare had no significant atropine-like effect on the partly inhibited heart. Gallamine, on the contrary, invariably exerted a strong atropine-like effect in these circumstances, and in the presence of carbon dioxide retention caused ventricular arrhythmia. Suxamethonium sometimes gave rise to transient cardiac depression—presumably by a muscarinic effect similar to that of acetylcholine—and 4 cases of cardiac collapse are cited. In 30 per cent of cases after suxamethonium there was flattening of the T wave associated with depression of the S-T segment. There were no changes in the electrocardiogram when laudexium methylsulphate was given.

The electrocardiographic response to intubation under various relaxants was also studied in 75 patients. No significant changes were noted with suxamethonium, but with gallamine there were laryngeal reactions accompanied by a sharp increase in the heart rate and, in some instances, by ventricular extrasystoles. All patients given curare had tachycardia on intubation, and in 28 per cent there were ventricular extrasystoles which disappeared with the return of efficient respiratory exchange.

It is pointed out that the adrenergic effect on the heart of ether, chloroform, and cyclopropane may be dangerously augmented by retention of carbon dioxide.

Gallamine, by its vagolytic action, may further increase the sympathetic preponderance, and then ventricular arrhythmia is likely.

Ronald Woolmer

Phlebitis. A Study of 748 Cases at the Boston City Hospital. J. J. BYRNE. *New Engl. J. Med.*, 253, 579–586, 1955.

The natural history of phlebitis and the prophylactic value of vein ligation in this condition were studied in 748 cases admitted during the last 10 years to the Boston City Hospital, the investigation being confined to those cases in which there were signs of deep phlebitis in the legs.

The incidence of phlebitis was highest in the age group 50 to 79 years; 83 per cent of the cases occurred in patients over 40. Cardiac disease was the commonest pre-disposing factor (28% of cases), followed by post-operative phlebitis (23%), and trauma (11%). In 49 patients (6%) there appeared to be no predisposing cause. The remaining cases were associated with sepsis, varicose veins, hemiplegia, pregnancy and labour, or cancer. The author noted, as others have done, that mortality from pulmonary embolism was highest in patients with the fewest clinical signs and symptoms in the legs.

Conservative treatment was given to 345 patients, 128 (37%) of whom died; 369 received surgical treatment (ligation of the vena cava in 7 and bilateral division of the femoral vein in the remainder), of whom 8 (21%) died. In 8 of the cases treated surgically anticoagulant therapy had been given and embolism had occurred before operation. Of 32 patients given anticoagulant therapy, 9 died (5 from pulmonary embolism), although the dosage of the anticoagulant was apparently adequate.

The author points out that while an exact comparison was not possible it did appear that the patients treated surgically fared better than those treated conservatively. Discussing the relation between premonitory pulmonary embolism and mortality he states that the first attack was fatal in 122 out of 144 cases of fatal pulmonary embolism in patients with pre-existing phlebitis—that is, only 22 patients had a warning attack. The post-phlebotic syndrome developed within 1 to 5 years in 31 out of 67 patients treated surgically, and in 34 out of 39 treated conservatively.

F. B. Cockett

The Roentgen Appearance of the Pulmonary Veins in Heart Disease. H. L. STEINBACH, T. E. KEATS, and G. E. SHELINE. *Radiology*, 65, 157–168, 1955.

In the postero-anterior radiographs of the chest the veins of the right lower lobe and, less frequently, those of the right upper lobe and left lower lobe can be distinguished. The lateral view shows the superimposed shadows of both lower-lobe veins converging towards the posterior aspect of the left atrium. In the left anterior oblique view the main venous trunks of the right lung are superimposed on the heart below and slightly posterior to the pulmonary artery. The smaller venous branches from the lung converge towards the main trunks like the spokes of a wheel.

It is of great importance to assess the degree of vascu-

larization of the lungs in the diagnosis of heart disease. The authors therefore made an attempt to evaluate separately the pulmonary arteries and veins. In pulmonary stenosis they have found that, although the main pulmonary artery is dilated and the hilar branches may appear normal, the pulmonary veins are smaller than normal. In one instance in which a clinical diagnosis of pulmonary stenosis was made large pulmonary veins were found, and catheterization showed that the stenosis was complicated by a patent ductus and by an anomalous pulmonary vein entering the right atrium. The demonstration of small pulmonary veins has also been helpful in cases of Fallot's tetralogy, tricuspid atresia, and truncus arteriosus. Enlargement of the veins was found in many instances of left-to-right shunt. In a survey of 100 proved cases of patent ductus arteriosus visible enlargement of the pulmonary veins was observed in 71.

In acquired mitral valve disease with pulmonary hypertension the pulmonary veins in general appear normal. This, it is considered, is due to the narrowing of the peripheral pulmonary arteries which has been shown to occur in pulmonary hypertension secondary to mitral stenosis.

Kenneth A. Rowley

The Effect of Oral 1-Hydrazinophthalazine Therapy on Renal Function in Essential Vascular Hypertension. I. J. MADER and L. T. ISERI. *Amer. Heart J.*, 50, 556, 1955.

At Detroit Receiving Hospital (Wayne University), Detroit, 14 patients with severe hypertension were treated with oral 1-hydrazinophthalazine ("apresoline") and subcutaneous hexamethonium. From initial doses of 25 mg. and 3 to 5 mg. respectively the dosage was gradually increased to a maximum ranging from 400 to 900 mg. of 1-hydrazinophthalazine and from 20 to 100 mg. of hexamethonium daily. The patients were observed in hospital under controlled conditions, blood pressure being recorded twice daily. Immediately before starting therapy and again 14 to 41 days afterwards the renal clearances of inulin and PAH were measured and from the results the glomerular filtration rate, renal plasma flow, and maximum tubular excretory capacity were calculated. In some cases the cardiac output was measured by cardiac catheterization. In 12 of the patients there was a fall of blood pressure greater than 15 mm. Hg, and in 10 of these the renal studies showed that a decrease in the afferent arteriolar resistance had occurred and that renal plasma flow had increased, although no significant change in cardiac output was observed, indicating a decrease in the renal ischaemia. The duration of the effect is not known.

H. E. Holling

Mitral Valvotomy: A Follow-up of 45 Patients for Three Years and over. C. BAKER, R. BROCK, and M. CAMPBELL. *Brit. med. J.*, 2, 983, 1955

In a detailed and careful study of 45 patients followed up for 3 years or more after operation for mitral stenosis at Guy's Hospital, London, the authors analyse the various factors which may influence the results, and

attempt to answer the question whether the effects of mitral valvotomy are lasting or not.

At the end of one year the result was considered good in 38 cases, but after 3 years the figure was only 27. Thus the condition of 11 patients had deteriorated during this period, and possibly a smaller proportion will continue to relapse as the years progress. The size of the opening obtained at operation appeared to bear a close relation to the long-term result. If there was regurgitation or an opening of only 2 cm. diameter at the end of the operation the results were poor, while with an opening over 3 cm. in diameter the long-term results were much more satisfactory. Regurgitation did not necessarily preclude lasting benefit, except when associated with calcification of the valve. The size of the heart, the presence or absence of auricular fibrillation, and the degree of disability before operation had little influence on prognosis: in fact most patients with auricular fibrillation did well. On the other hand fibrillation that developed after the operation and could not be controlled was an unfavourable feature. Pulmonary hypertension was invariably reduced by valvotomy, and the greater the degree of hypertension present originally, the greater was the degree of improvement after operation. In young patients the risk of recrudescence of rheumatic activity causing re-stenosis is difficult to assess; there was evidence of such re-stenosis in 3 of the authors' cases.

The authors conclude that in a proportion of cases the original benefit of the operation will be lost as years go by, but that this proportion is likely to be small in comparison with the more lasting benefit obtained by the majority.

T. Holmes Sellors

An Analysis of Fifty Patients Treated by Mitral Commissurotomy Five or More Years Ago. R. P. GLOVER, T. J. E. O'NEILL, and O. H. JANTON. *J. thorac. Surg.*, 30, 436-451, 1955.

The first 50 consecutive patients undergoing mitral commissurotomy approximately 5 to 6 years ago have been subjected to a detailed analysis in an attempt to ascertain their present subjective and objective status. There was an operative mortality of 6 per cent (3 patients) and subsequent death, 6 weeks to 3 years later, occurred in 12 per cent (6 patients). The remaining 41 patients (82%) are living and these have formed the basis for the following conclusions.

30 patients (73% of those living or 60% of the original 50) are in better condition and living a more nearly normal life than they were prior to surgery. According to the patients' and their family physicians' own appraisal of the present clinical status of these 41 living patients, 36 (88% of those living, or 72% of the original 50) are better after 5 years than they were prior to surgery. If one were to judge the present clinical status of these patients on the basis of their murmurs alone, it would be impossible to come to any definite conclusions. Only 4 of these 41 living patients have a heart free of murmurs. Eleven have lost all evidence of their original mitral diastolic murmur. Fourteen patients now have a mitral systolic murmur of varying degrees which was not present prior to surgery. Those patients who have a pure murmur of

mitral stenosis indicative of a small mitral orifice obtain the best results from mitral commissurotomy.

Although the electrocardiographic changes following surgery do not always show conclusive evidence of improvement, they often indicate some return towards the normal. 10 (24%) of the 41 living patients now have a cardiac silhouette that is obviously smaller than it was prior to surgery, 26 (63%) have a cardiac mass which is of the same size as that noted before surgery, and in 5 (13%) the heart size is obviously larger.

In 20 (49%) of these patients valvular calcification was present and the degree of improvement in these, although quite satisfactory was not as great as that seen in the others. Evidence of rheumatic activity was observed during the postoperative period in 8 patients (19.5%). No evidence of valvular restenosis has been observed in the 41 living patients nor in the valves of those who died in the postoperative period.—[Author's summary, abridged.]

The Significance of Previous Embolism for the Prognosis of Commissurotomy for Mitral Stenosis. A. ACTIS-DATO and F. MORINO. *Minerva med. (Torino)*, 2, 255-263, 1955.

A review of the histories of 500 cases of mitral stenosis in which commissurotomy was performed at the University Cardiac Surgery Centre, Turin, showed that 52 patients (10%) had experienced embolic episodes pre-operatively. At operation embolism was observed in 5 other patients, of whom 3 had died, and subsequently a further 14 patients suffered embolism which proved fatal in 3.

The authors have modified their previous view that operation should be deferred for at least 6 months in the presence of embolism, and now advise early operation in spite of this event, although such patients are at greater risk, embolism occurring in 11.5 per cent of them as against only 3 per cent of the remaining 448 cases, and resulting in a mortality of 6 per cent as against 0.7 per cent. In none of the 49 patients previously experiencing embolism and surviving operation has there been further evidence of this complication.

The authors express the view that with exclusion of the auricle and the improvement in cardiac function the patient is protected against further episodes of this kind.

C. A. Jackson

Surgical Correction of Tetralogy of Fallot. Results in First One Hundred Cases Six to Eight Years after Operation. W. J. POTTS, S. GIBSON, E. BERMAN, H. WHITE, and R. A. MILLER. *J. Amer. med. Ass.*, 159, 95-99, 1955.

The authors here give details of the long-term results of aortic-pulmonary anastomosis for Fallot's tetralogy in the first 100 cases so treated at the Children's Hospital, Chicago, since 1946. All the patients were under 16 and 35 were less than 4 years of age. Before operation 60 were classed as "bad-risk cases." The standard Pott's operation was performed in all but one. At first a 5-mm. anastomosis was made, but this was soon reduced to 4 mm. except in very young children. A second opera-

tion was necessary in 4 cases. The operative mortality was 9 per cent, a disproportionate number of deaths occurring among the youngest patients.

The difficulties in evaluation of the results are stressed. The authors have undertaken a very careful follow-up, and have assessed the patients on clinical grounds. They have demanded a high standard before classifying a result as "good," but despite this they have felt justified in placing 68 per cent in this group, while in 16 per cent the result was classified as "fair." Cardiac enlargement has occurred in many patients, but its extent has not been closely related to the clinical result, and although it has often occurred soon after operation, it has not been progressive. There have been 5 late deaths, only one of which was due to a cardiac cause.

J. R. Belcher

The Surgical Anatomy of Atrial Septal Defects: Experiences with Repair under Direct Vision. F. J. LEWIS, M. TAUFIC, R. L. VARCO, and S. NIAZI. *Ann. Surg.*, 142, 401-417, 1955.

In this paper from the University of Minnesota, Minneapolis, the authors discuss the anatomy and repair of atrial septal defects on the basis of observations made during 35 operations in which the cardiac inflow was occluded during hypothermia. They describe the four types of defect encountered as follows: (1) Foramen ovale defect (23 cases). The valve is often present as a fenestrated membrane, and anomalous venous drainage or mitral stenosis are associated conditions in some cases. Care must be taken to ensure that the closing suture does not divert any vein into the wrong atrium. (2) High defect (5 cases). This lies just below the superior vena cava, separate from the fossa ovalis (which may also be patent), and is always associated with anomalous drainage of a pulmonary vein. (3) Continuous defect (one case). This is a high defect with anomalous drainage, extending inferiorly into a patent foramen ovale—"absent septum." (4) Low defect—part of persistent common atrioventricular canal (6 cases). This may be a persistent ostium primum with notched mitral valve; in repair, which is difficult, injury of the conducting system is likely, leading to heart block; the more serious common atrioventricular canal, or incomplete double heart, with an associated interventricular defect has not been successfully repaired.

Of the 29 patients with defects of the first three types, 3 died; the remainder, the oldest of whom was 52, were improved, the defect being completely closed in all except 2. Ventricular fibrillation occurred in 11 patients, but was reversed in all but one.

[This paper, which includes good illustrations, should be read in full by all who are interested in the subject.]

M. Meredith Brown

The Results of Direct Vision Closure of Ventricular Septal Defects in Eight Patients by Means of Controlled Cross Circulation. C. W. LILLEHEI, M. COHEN, H. E. WARDEN, N. R. ZIEGLER, and R. L. VARCO. *Surg. Gynec. Obstet.*, 101, 446-466, 1955.

In a previous paper (*Surgery*, 1955, 38, 11; *Abstracts of World Medicine*, 1956, 9, 123) the authors described the

principle and technique of a method of cross-circulation whereby a patient's heart can be excluded from the circulation and an intracardiac defect repaired under direct vision. In the present article they describe the application of this method in the repair of ventricular septal defects.

The operation consisted in freely opening the myocardium of the right ventricle by an incision parallel to the coronary arteries, the edges of the wound being retracted by stay sutures. The margins of the ventricular defect, which in all 8 cases was high in the septum under the leaflet of the tricuspid valve and close to the aortic leaflet of the mitral and the cusps of the aortic valves, were then defined carefully, this procedure being facilitated by division of the papillary muscles of the tricuspid leaflet and their retraction upwards. Sutures were then applied to close the defect, and the papillary muscles sutured back in their original position. (It is emphasized that before closure is completed the left ventricle must be filled with blood or other fluid to avoid the risk of air embolism.) Closure of the right ventricle was then carried out with a continuous suture.

The period during which the heart and lungs were totally by-passed varied between 5 and 26 minutes. Two of the patients died some days after operation, but both these infants were very ill at the time of the operation. In 4 of the survivors closure of the defect has been confirmed by catheterization. There was no complication involving any of the donors.

[The case-reports provided afford interesting reading.]

T. Holmes Sellors

Reduced Intrathoracic Circulation as an Aid in Angiocardiography. An Experimental Study. I. BOEREMA and J. R. BLICKMAN. *J. thorac. Surg.*, **30**, 129, 1955.

Many of the difficulties still encountered in angiocardiography are considered to be due to rapid dispersal of the contrast medium and the great mobility of the walls of the heart and great vessels during the cardiac cycle. This has necessitated the rapid injection of a concentrated medium and the use of expensive apparatus to obtain serial radiographs by frequent, short exposures. These difficulties could be overcome if the blood flow through the heart were reduced during the examination.

The effect of respiration on the circulation has been discussed by a number of authorities since Valsalva's original observation, notably by Weber who, in 1850, showed that forced expiration when the glottis was closed was followed by immediate cessation of the heart beat with rapid weakening and disappearance of the radial pulse; he concluded that this was due to compression of the venæ cavæ and right atrium. This observation has since been confirmed, and the present authors, at the University of Amsterdam, carried out experiments on animals to determine whether the mechanism described by Weber could safely be utilized in angiography in the human subject. The trachea was intubated with a cuffed tube and a water manometer was placed in the anæsthetic circuit so that exact control of the pressure exerted by manual compression of the bag was possible. A pressure of 30 to 60 cm. of water produced the desired decrease in

cardiac output. Direct blood pressure recordings were obtained from different positions under varying conditions. The technique and results of the experiments are described and angiocardiograms are reproduced.

Sydney J. Hinds

Prothrombin Pattern over the 24 Hours in Patients Receiving Oral Anticoagulants. H. L. MATTHEWS, M. J. MEYNELL, C. G. PARSONS, E. G. WARBURTON, and J. A. H. WATERHOUSE. *Brit. med. J.*, **2**, 947-948, 1955.

Of 19 patients with myocardial infarct, coronary insufficiency, venous thrombosis, or pulmonary embolism who were under treatment at the General Hospital, Birmingham, and were already stabilized on oral anticoagulant therapy, 10 were given the required dose of phenindione ("dindevan") and 9 ethyl biscoumacetate ("tromexan") at 6 p.m. one evening, the prothrombin time being thereafter estimated by Quick's method every 2 hours for the next 24 hours.

The authors found that the prothrombin concentration remained at a relatively high level for 8 to 10 hours and then fell to its lowest level about 18 hours after administration of the anticoagulant. The patients receiving ethyl biscoumacetate tended to show greater variations of the prothrombin concentration during the day than those given phenindione. It is concluded that the blood required for routine estimations of prothrombin time should be withdrawn at the same time each day, and that phenindione and ethyl biscoumacetate are effective in a single daily dose once the patient has been "stabilized."

[It is unfortunate that the results are expressed in the form of prothrombin concentration instead of prothrombin time. The prothrombin concentrations were presumably calculated from dilution curves, and on this basis the apparently dramatic fall in concentration (as, for example, in the graph for ethyl biscoumacetate) represents a difference of only about 4 seconds in the prothrombin time; at this level the experimental error is approximately 2 seconds. The conclusions drawn from these observations are probably valid, but the trends are not as significant as the figures and graphs seem to suggest.]

T. B. Begg

A.B.C. de Cardiologie. P. BARDIN, H. HEIM de BALSAC, G. MAYONADE, and P. STEIN. Pp. 557. *Expansion Scientifique Française*. (No price given.)

The title of this book is misleading as it consists of 37 essays, arranged alphabetically, on various cardiological topics. The subject matter includes the various symptoms of heart disease, special methods of investigation such as radiokymography and vectorcardiography, the effects of obesity on the cardiovascular system, cardiac enlargement in infants, and the assessment of systolic murmurs. There are also chapters on the effect of kyphoscoliosis on the heart, and radiology of the heart. The wide range of subjects covered, many of them not dealt with adequately or at all in the ordinary text books, makes this a useful addition to the books on cardiology.

Graham Hayward

Physiopathology and Diagnosis of Adhesive Pericarditis.

Prof. LUIGI CONDORELLI in collaboration with A. TURCHETTI, G. SCHIROSA, A. STRANO, M. SANGIORGI, F. TESTONI, G. FILOCAMO, and A. TEDESCHI. Pp. 273, illustrated. (Price not given.) Milano, Arrigo Recordati, 1954.

Professor Concorelli whose work on venous circulation is well known is well qualified to write an authoritative treatise on constrictive pericarditis. "Concretio" and "accretio" of the pericardium, though more often associated, are being treated separately for in their pure form they give rise to different circulatory effects. Constrictive pericarditis mainly affects the right heart and through it the venous circulation. Contrary to the increased venous pressure in congestive heart failure the syndrome of venous hypertension in constrictive pericarditis is an active process, kept up by an increased tonus of the peripheral veins. Absent or diminished jugular pulsation, absence of respiratory pressure variations, paradoxical behaviour of the venous pressure are the features of right atrial or ventricular constriction. The location of maximal constriction is assessed by venous pressure tracings, intracavitary oscillography, and radiokymography; accretio by introduction of air into the mediastinum which also gives information about the extent of mediastinal involvement. Tomography added to pneumomediastinum produces impressive radiographs which side by side with controls clearly illustrate the topography of maximal adhesions and furnish the surgeon with important data where to operate. A detailed description of the instrumental technique completes this excellent monograph.

C. Papp

The Heart in Acute Glomerulonephritis. T. R. MURPHY and F. D. MURPHY. *Ann. intern. Med.*, 41, 510-532, Sept., 1954.

The cardiac changes in acute glomerulonephritis were studied at Milwaukee County Hospital, Wisconsin. In the authors' view cardiac involvement is indicated by the presence of one, or any combination, of the following: (1) clinical heart failure; (2) radiological evidence of enlargement of the heart; and (3) electrocardiographic (ECG) abnormalities. On this basis cardiac changes were found in 41 out of 88 cases of glomerulonephritis. Heart failure, which was present in 22 of the cases, appeared to be more frequent in patients over 21 years of age and in those with moderate or severe hypertension, although hypertension itself was not considered to be the sole cause of failure. Cardiac failure occurred in 9 of 16 patients with convulsions. The most frequently observed abnormalities in the ECG were T-wave changes in lead I. The authors point out that heart failure may not always be recognized because the oedema of acute nephritis may obscure distension of the neck veins. Further, it may not be suspected since little is known about the incidence of heart failure in acute nephritis.

James W. Brown

Right Ventricular Block. A Clinical Study of 232 Cases.

G. FISCHER, M. M. VASTESAEGER, and P. VANDER-STRATEN. *Acta clin. belg.*, 9, 230-261, May-June, 1954.

The authors present, from the Medico-surgical Institute, Ixelles, Belgium, a clinical study of 232 cases of right ventricular block, comprising 130 cases from private practice and 102 from three hospitals, 72 per cent of the patients being male and 28 per cent female. In the youngest patients the lesion was of congenital aetiology only and all these patients showed minor (incomplete) degrees of block (QRS complex of 0.10 to 0.12 second). The patients in the age group 20 to 40, almost exclusively male, included 45 per cent of cases of unknown aetiology. By relating these to the figures for proven cases of coronary atherosclerosis the authors contend that this disease is in fact the cause of block in such cases, and occurs at an earlier age in men than in women; in this group, 81 per cent of cases were attributed to coronary disease. Of 40 cases presenting only minor degrees of block—this small proportion is attributed to very strict selection—17 (42%) were due to incontestable coronary arterial disease and 10 (25%) were of unknown aetiology. With increasing age the proportion of cases of minor block diminished.

In discussing the development of block in cases of cor pulmonale and mitral stenosis the authors observe that the majority of these patients are aged over 40 and possibly subject to the additional factor of coronary disease. The authors cite cases of cardiac infarction and coronary sclerosis to support their belief that damage to an area of myocardium without damage to the bundle of His can cause block, whereas considerable interference with the bundle of His may occur without block. The authors suggest that, apart from the factor of infection in acute rheumatism, the sole determinant of right ventricular block is myocardial ischaemia, whether relative (as in ventricular hypertrophy), in which case it leads to a minor degree of block, or absolute, leading to major degrees of block.

R. S. Stevens

Hypertension and Its Control by Hexamethonium. K.

SHIRLEY SMITH, P. B. S. FOWLER, and V. EDMUNDS. *Brit. med. J.*, 2, 1243-1250, 1954.

The authors report on 83 patients with hypertension who were treated with hexamethonium bromide at Charing Cross Hospital and followed up for periods varying from 6 months to 3 years. The drug was given parenterally to 51 patients and by mouth to 32; in 16 cases of the former group and 7 of the latter either treatment was abandoned or the patient died. Of the remaining 35 patients who received parenteral treatment, a "good" response in terms of reduced blood pressure was noted in 11 and a "fair" response in 12; of the 25 patients on oral treatment the response was "good" in 3 and "fair" in 5. However, many patients experienced relief of such symptoms as headache and angina despite an inadequate reduction in blood pressure.

K. G. Lowe