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Hall of Fame

Paediatric Cardiology – James William Brown

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"When the history of congenital heart disease comes to be written, Brown will be given a high and honourable place along with Farre, Peacock, Fallot, Théremin, Vierordt, and Maude Abbott, as one whose labours have contributed vitally to the subject."[1]

The name of James William Brown (Fig. 1), who lived from 1897 until 1958, and who was known affectionately as "JW" or "Jim", will be unfamiliar to most paediatric cardiologists practising in the current era. His contribution to our understanding of congenital cardiac malformations, nonetheless, was substantial. The manner in which he gained his enormous clinical and pathological experience was probably unique. In later life he was the first head of the newly created Regional Cardiovascular Centre in Sheffield, in the northern end of the Midlands of England. He was appointed unopposed to this position in 1952, in recognition of his very high repute subsequent to the publication of two editions of his book "Congenital Heart Disease" (Fig. 2), which appeared first in 1939,[2] this being the second clinically oriented textbook to appear devoted to congenital cardiac anomalies, the first having been a much smaller work, published in the French language, by Laubry and Pezzi.[3] The second edition appeared in 1950.[4] The book was the culmination of years of painstaking study in Grimsby, where he had worked initially in general practice, and later as pathologist to Grimsby Hospital and as a consultant physician.

During the next few years he, along with the Sheffield team, published several papers on different issues connected with congenital cardiac disease.[5–7] A co-author on several of these was a young Sheffield graduate, and aspiring trainee in cardiology, called Donald Heath. Because of his contact with the patients of JW who had congenital cardiac disease, Heath became interested in pulmonary hypertension. This led, in 1957, to his travelling to the Mayo Clinic on a Rockefeller Travelling Scholarship.[8] In Rochester, he worked closely with Jesse Edwards, and together they described the classic histological picture of the pathology of pulmonary hypertension, their classification still being known today as the Heath-Edwards system.[9]



Figure 1.
James W (Jim) Brown.

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Early career

James Brown was born in 1897. Brought up in Gloucestershire, with the rural Gloucestershire accent that he acquired from growing up in that area, he had a Quaker background and the associated pacifist principles. He worked with the French Red Cross during the First World War. After the war, he went to medical school, graduating from the Middlesex Hospital in London in 1923. He rapidly settled in general practice in Grimsby, a fishing port in the English county of Lincolnshire. In Grimsby, he became fascinated by the problems manifested by congenital cardiac anomalies in some of the children whom he encountered in school clinics, which he utilised as his main avenue for finding and following children with such problems. At that time, there was no treatment for such defects, and few devoted much effort to investigating them. This was, of course, because it was almost impossible to make an accurate diagnosis during life. Indeed, the usual approach was to tell the family that "nothing could be done", sending the patient away with no arrangements for subsequent follow-up. Moreover, rheumatic fever and its consequences were still very common in children. As this was much more amenable to treatment, albeit that surgery was not yet available for rheumatic valvar disease, many paediatricians and physicians saw this as a higher priority than congenital cardiac disease, for which no treatment existed.

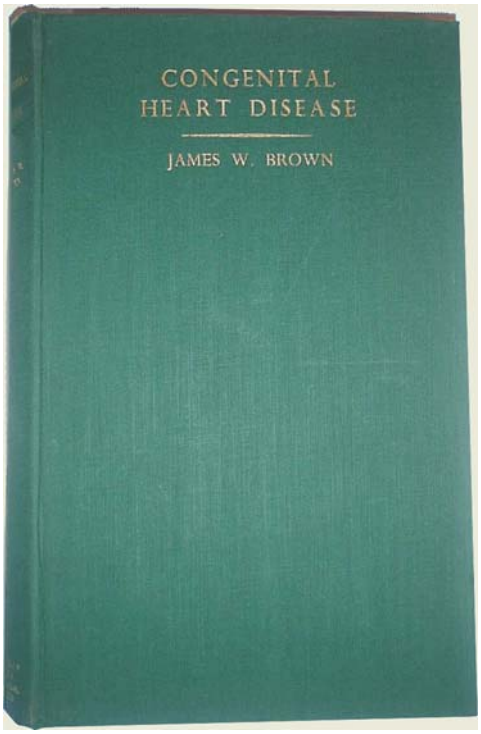


Figure 2.
The first edition of "Congenital Heart Disease", published in 1939.

Brown, however, devoted a large amount of time and effort to the study of his cardiac patients with congenital malformations. He documented their clinical findings, maintained contact with them and their families, and studied their hearts at autopsy should they die, having also trained in pathology, and having taken a part-time appointment as pathologist to Grimsby Hospital. In 1932, he published, along with DC Muir, from Hull, another fishing town across the estuary of the Humber, a paper on patency of the arterial duct.[10] This was followed by papers on ventricular septal defect,[11] cyanotic congenital cardiac disease, congenital aortic stenosis,[12] coarctation of the aorta with bacterial endocarditis[13] and tricuspid atresia.[14] He communicated extensively with Maude Abbott who, as the curator of the McGill Medical Museum in Montreal, was accumulating a large body of data on the pathology of congenital cardiac malformations. Her *Atlas of Congenital Heart Disease* was published in 1936.[15] Brown, in the meantime, while still a general practitioner, had submitted a thesis successfully for the award of his Doctorate in Medicine, and passed the examination for admittance as a Member of the Royal College of Physicians. In 1935, he was elected to the Association of Physicians of the United Kingdom, an almost unique achievement at that time for a general practitioner. Other papers followed[16] and in 1937, along with Evan Bedford, he wrote the section on congenital cardiac disease for the British Encyclopaedia of Medical Practice.[17] In 1938, he finally gave up general practice, having accumulated sufficient consultant work to keep him busy in Grimsby.

The Textbook of Congenital Heart Disease

It was in 1939 that JW published the first edition of his book "Congenital Heart Disease".[2] As already discussed, this was one of the first clinical textbooks on the subject, and as far as we are aware, is the first published in the English language, albeit that Abbott's Atlas[15] contained much clinical information. It antedated by nearly a decade the much better known book of Helen Taussig, which appeared in 1947.[18] The substance of Brown's textbook was a comprehensive review of congenital cardiac malformations, substantiated by electrocardiographic and radiological findings, based on his own experience as a clinician and as a pathologist. It was an outstanding work. Coming from one who was busy in general practice, virtually without clerical help, this book represents an achievement equal to the appearance of Mackenzie's "Study of the Pulse", published in 1902.[19]

He accumulated a large collection of well dissected and preserved specimens of congenital heart disease. Many years later, in the late 1940s, a number of these

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were placed in perspex containers by a young pathologist then working in Grimsby, Leon Gerlis, co-author of this review.[20] Leon was personally encouraged by Brown, and received detailed tutorials on the mysteries of congenital cardiac malformations as each specimen was carefully prepared for display. Approximately 50 of these specimens still exist, and are now held in the Leon Gerlis Museum of Cardiac Pathology and Morphology at the Royal Brompton Hospital in London (Figs. 3 and 4). The understanding of the pathology achieved by Brown and Gerlis, and its implications for the appreciation of the clinical manifestations of congenital cardiac disease, was well ahead of his time. Brown's textbook is remarkable for its lucidity and its forward thinking at a time when the first surgery for such defects was only just beginning to be attempted. In his first edition, he mentioned the first ligation of a patent arterial duct, which had been performed in Boston by John Streider, and published the previous year.[21] The later description of the same procedure by Robert Gross, whose patient survived, and is therefore acknowledged as the first "successful" procedure,[22] did not emerge in time for it to appear in the book.



Figure 3.
The collection of the specimens, initially collected by James Brown, along with Leon Gerlis. The archive is now maintained in the Leon Gerlis Museum of Cardiac Pathology and Morphology at the Royal Brompton Hospital, London.

By modern standards, the book is relatively small, running to around 250 pages. It contains a wealth of information, nonetheless, and addresses a range of congenital heart defects, with particular reference to the clinical findings along with radiological and electrocardiographic features. The nomenclature used is somewhat archaic, albeit in keeping with that which was generally used at the time. A number of the terms employed would be unfamiliar to the current generation of paediatric cardiologists.

The illustrations, and there are 84 figures, include some radiographs, a few clinical photographs, several specimens, either recorded photographically or as ink drawings, and a wealth of simple diagrams, most prepared by James Brown himself (Figs. 5–7).

In discussing "cor biatriatum triloculare, which would now usually be described as double inlet ventricle, Brown refers to the case described by Holmes in 1824, which was then thought to be unique (Fig. 5). He subsequently dissected a similar specimen himself, which is now preserved in the Leon Gerlis Museum at the Royal Brompton Hospital (Fig. 4).

He recognized the frequency of systolic murmurs amongst normal children, and stressed the importance of avoiding "wrongful interpretation" of such murmurs, which might lead to unnecessary restriction and "induce invalidism or an inferiority complex during the formative stages of a child's career". His statement that "familiarity with the cardiac auscultatory signs in childhood soon removes most of the difficulty in the interpretation of such a murmur" is as apt now as it was when the book first appeared.

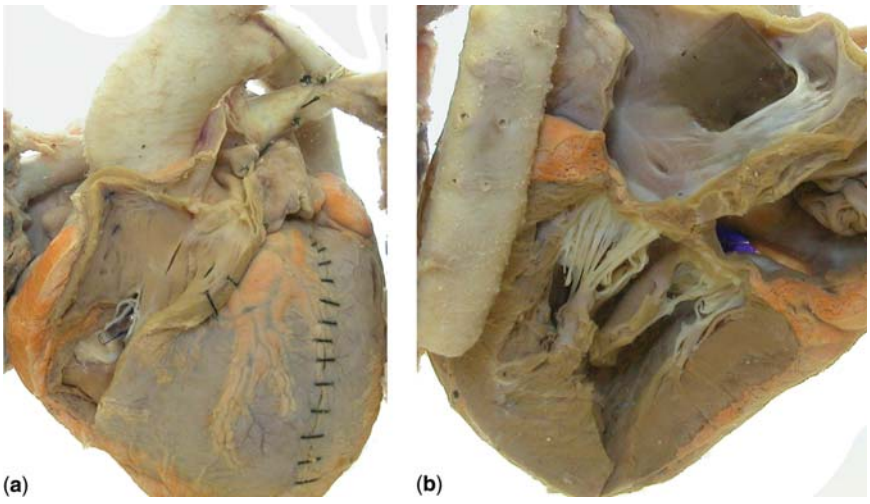


Figure 4.
*The example of the "Holmes Heart" seen and retained by James Brown A. Anterior view showing normal arterial arrangement with an incomplete right ventricle and probe in a ventricular septal defect. (**a**) small amount of tension apparatus (of the right atrioventricular valve) straddles the ventricular septal defect. (**b**) Posterior view of the opened atriums and left ventricle showing both atrioventricular valves entering the left ventricle. A wide probe is placed across an associated defect in the oval fossa.*

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The second edition of his book appeared in 1950,[4] and was also well received. Paul Wood, in a review quoted by Bedford [1], wrote: "Erudition and simplicity are harmoniously welded and more than 700 references are incorporated without detracting from its fluency. The author's practical experience of congenital heart disease, both at the bedside and in the post-mortem room is probably unique in this country and forms the basis of this book. It is, indeed, remarkable that a work on this subject could command such respect without paying tribute to modern techniques. But what may be lost by these omissions is made up by a wealth of other material, and it is just these riches which Dr. Brown has so ably presented, and which might so easily have been lost, that make the book so valuable."

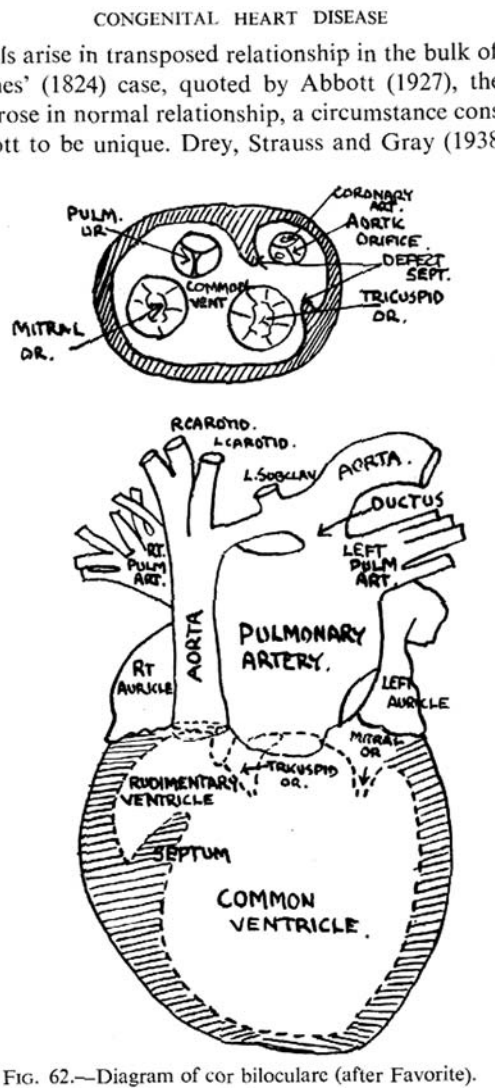


Figure 5.
Page 172 of the textbook, with reference to the Holmes heart and a diagram of double inlet left ventricle with the more frequent discordant ventriculo-arterial connections.

An Atlas followed in 1954, produced in conjunction with Gerlis.[20] The latter author recalls learning much about congenital cardiac malformations from the master during its preparation. During the tedious stage of checking the proofs for this work Brown was meticulous to the point that his younger colleague showed moments of impatience – at which point he was gently advised "Gerlis, I have my reputation to maintain, you still have yours to make. We must always check our work most carefully".

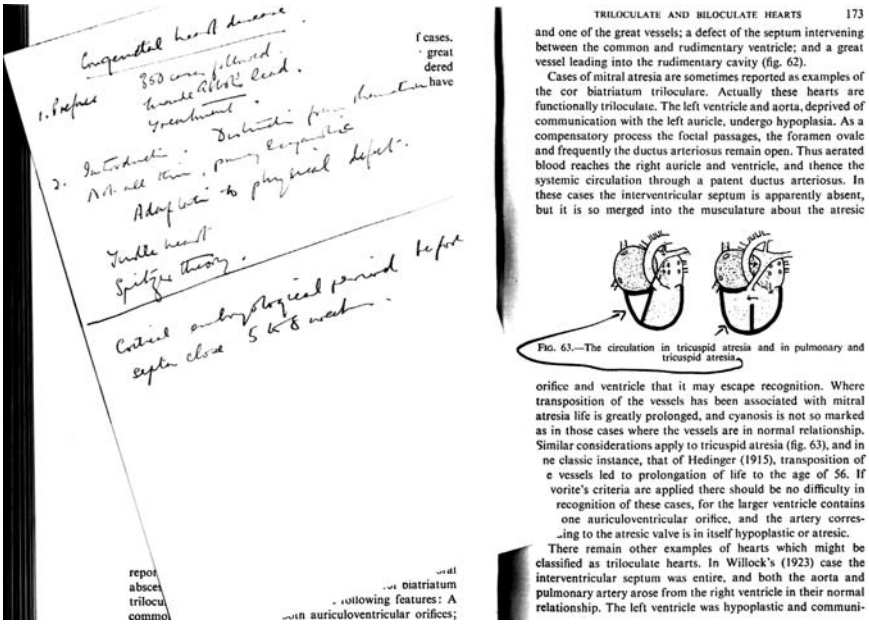
Subsequent career

As we have already discussed, in 1952 JW was appointed to the post of cardiologist, and head, of the newly formed Regional Cardiovascular Centre in Sheffield. And, as we have also indicated, his reputation was so great that no other applicant competed with him for the post. This position provided him with the scientific facilities he needed, without uprooting him entirely from his established base in Lincolnshire, which lay within the Sheffield region of the United Kingdom. Brown saw to it that his new department at the City Hospital had all the necessary laboratory accommodation and equipment needed for modern methods of cardiological investigation. His contacts in the region assured an abundance of clinical material.

In addition to his many clinical and administrative commitments in his new position, he found time to serve at different times over the next few years on the Consultants and Specialists Committee, the Rheumatic Fever and Cardiology Committees of the College of Physicians, the Council of the Cardiac Society, the Editorial Board of the British Heart Journal, and the Sheffield Regional Hospital Board.

James Brown was unusual in a number of respects. Not only was he one of the only clinicians of the period to develop a major interest in congenital cardiac defects but he was also an extraordinary personality, with a sharp intellect and considerable organizing ability, combined with a genuine affection for his young patients, with whom he got along extremely well. He maintained close contact with most of his patients and their families over many years, sending them Christmas cards, all signed personally, and organizing a regular Christmas party. His ward rounds in the Regional Centre in Sheffield were notable for the absence of any formality. The ward was deliberately left untended, with scattered toys. This was in sharp contrast to the routine required by the other cardiologists, who liked everything to be smart and suitably cleaned up, with the children carefully under control, and ordered to "keep quiet". He was known to many of his patients as "Uncle Jim". He taught that "the hospital is there for the patients – not the patients for the hospital!" He had a certain style, dressing always

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and one of the great vessels; a defect of the septum intervening between the common and rudimentary ventricle; and a great vessel leading into the rudimentary cavity (fig. 62).

Cases of mitral atresia are sometimes reported as examples of the cor biatriatum triloculare. Actually these hearts are functionally triloculate. The left ventricle and aorta, deprived of communication with the left auricle, undergo hypoplasia. As a compensatory process the foetal passages, the foramen ovale and frequently the ductus arteriosus remain open. Thus aerated blood reaches the right auricle and ventricle, and thence the systemic circulation through a patent ductus arteriosus. In these cases the interventricular septum is apparently absent, but it is so merged into the musculature about the atresic

FIG. 63.—The circulation in tricuspid atresia and in pulmonary and tricuspid atresia.

orifice and ventricle that it may escape recognition. Where transposition of the vessels has been associated with mitral atresia life is greatly prolonged, and cyanosis is not so marked as in those cases where the vessels are in normal relationship. Similar considerations apply to tricuspid atresia (fig. 63), and in ne classic instance, that of Hedinger (1915), transposition of e vessels led to prolongation of life to the age of 56. If vorite's criteria are applied there should be no difficulty in recognition of these cases, for the larger ventricle contains one auriculoventricular orifice, and the artery corres- ing to the atresic valve is in itself hypoplastic or atresic.

There remain other examples of hearts which might be classified as triloculate hearts. In Willock's (1923) case the interventricular septum was entire, and both the aorta and pulmonary artery arose from the right ventricle in their normal relationship. The left ventricle was hypoplastic and communi-

Figure 6.
Diagram and annotations in an original copy of book belonging to KD Wilkinson, of Birmingham.

(1) A defect of the interventricular septum opens into the sinus of the right ventricle (fig. 51). This is the commonest type. The defect is found beneath the non-coronary and right coronary cusps and opens into the right ventricle beneath the hypertrophied crista supraventricularis, which delimits the conus and serves to divert the blood-stream from the right to the left ventricle. The defect is variable in size and crescentic in shape and has its concave margin directed upwards. Its free margin is characteristically smooth and fleshy, in contradis-

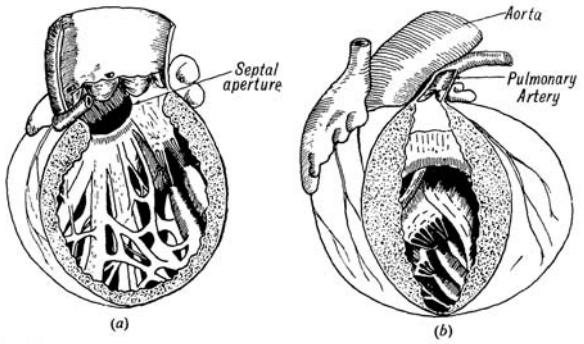


FIG. 51.—Fallot's tetralogy. (*a*) Left ventricle opened, showing defect of septum. (*b*) Right ventricle opened, showing hypoplasia of pulmonary artery and large aorta.

Figure 7.
The diagram of Fallot's tetralogy from the textbook.

in bow tie, and driving a Bentley, of which he was suitably proud, and which he kept in very good order. This was in marked contrast to the style of his paediatric rounds! Although he was not a paediatrician, at least in the modern sense of the term, he certainly had a natural flare for relating to children, for putting them at ease, and for treating them with great consideration and affection.

Outside of medicine, he was a useful artist, a bibliophile, a good judge of wine and food, a connoisseur of old china and pictures, and above all a remarkably shrewd judge of his fellow men. He could talk well on many subjects, so that an evening spent in his company was always a rewarding experience. Apart from his work, his main hobby was exploring old furniture and junk shops, and he was reputed to have visited every antique shop in the Midlands of England. He had an eagle eye for anything of interest, and his hand had a magnetic attraction for anything of value in a dusty pile of old books. He had a great love of the countryside, often surprising his friends in later life by his great store of knowledge of natural history. James Brown was married twice, and had a son and a daughter. He died in 1958.

In his obituary, written by Evan Bedford and DC Muir,[1] are to be found the words with which we commenced our encomium. They are worthy of repetition:

"When the history of congenital heart disease comes to be written, Brown will be given a high and honourable place along with Farre, Peacock, Fallot, Théremin, Vierordt, and Maude Abbott, as one whose labours have contributed vitally to the subject."

A personal reminiscence

Dr Michael West was house physician of James Brown in Grimsby in 1942, and became his medical registrar in 1948. Michael emigrated subsequently to Canada, where he practised as a general physician, and is now retired. He recalls:

"He always wore brown corduroy trousers, a tweed coat, bow tie, and brown leather braces and smoked DuMaurier cigarettes. He did medical outpatients on Tuesdays, bringing along his Cambridge electrocardiogram, with a car battery, which was the only one in town. The electrocardiographic tracings had to be developed and printed like photographs in the dark room, which was my job after the clinic in the afternoon. He made medical rounds on Sunday morning and he

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held court in the Doctor's room in a lively discussion on all sorts of subjects. He drove an old Bentley car all over the place and visited some of his small patients in schools along the way. On one occasion, I accompanied him on a house call to a farm in the country, lugging the electrocardiographic machine and its battery over a field. After the patient had been seen, we retired to the bathroom to discuss the diagnosis, along with the fee, which I think was 3 guineas. I made several trips with him to the Chest and Isolation Hospital at Groby Road, Leicester, where he held regular clinics, which was very interesting."

Conclusion

It is a reflection on the rapid pace of developments over the last half century that the contribution of James Brown has been largely overlooked by those who have followed. It is hoped that his worthy induction to the "Hall of Fame" will help to correct that.

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