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SIR DOMINIC CORRIGAN: Healer of Hearts

EDWARD PODOLSKY, M.D. LITT.D.

We present another vignette in our series of Catholic Men of Medicine. Sir Dominic Corrigan made definite contribution in his studies of the actions of the heart and his story should be of interest to our readers.

IT WAS NOT too long ago that physicians realized the contracting heart muscles made sounds, and that when one listened to those sounds he could learn a great deal about the condition of the heart. It was William Harvey who discovered the circulation of the blood, listened to the sounds that the heart made as it worked and believed that they might be of some value in eliciting vital information about the organ and its function.

There was also Dr. Robert Hooke, an original thinker who was far ahead of his time. Living more than a hundred years before René Laënnec, who invented the stethoscope and made the listening to heart sounds less arduous, Dr. Hooke speculated with some degree of imagination on sounds of the internal organs and the meaning of them. He wrote:

There may also be a possibility of discovering the internal motions and actions of bodies by the sounds they make. Who knows but that, as in a watch, we may hear the beating of the balance, and the running of the wheels and the striking of the hammers and the grating of the teeth and multitudes of other noises; who knows, I say, but that it may be possible

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to discover the motions of the internal parts of bodies, whether animal, vegetable, or mineral, by the sounds they make: that one may discover the works performed by the several offices and shops of man's body, and thereby discover what instrument or engine is out of order, what works are going on at certain times, and lie still at others, and the like.

I have been able to hear very plainly the beating of a man's heart, and it is common to hear the motion of the wind to and fro in the guts, and other small vessels: the stopping of the lungs is easily discovered by the wheezing, the heart by the humming and whistling noises, the slipping to and fro of the joints, in many cases by crackling, and the like . . . So to their becoming sensible they require either that motions be increased or that the organ be made more nice and powerful to sensate and distinguish them.

Somewhat later an event occurred that enabled Dr. René T. H. Laënnec to make an important discovery. One day crossing the courtyard of the Louvre, he saw some children listening at one end of a beam of wood to the sound made by striking a pin on the other end. He was inspired to try the same procedure when listening to the sounds of the chest.

He made the first crude stethoscope entirely out of wood, but it magnified the heart sounds astonishingly, and he heard sounds that no doctor had heard before. For two years he went from patient to patient listening through the stethoscope. At the end of that time he wrote a book on the subject and

gave a very learned lecture before the Academy of Sciences.

Dr. Laënnec rapidly found disciples, bright young medical men who took up the new instrument with enthusiasm. There were several young English doctors who were firm believers in auscultation. Among them was Dr. William Stokes, who wrote quite an exhaustive book on the new medical art.

Dr. Stokes had graduated from Edinburgh in 1825. In the same class was another Irishman, Dominic John Corrigan, who was destined to play an important role in learning to understand the language of the heart. Dr. Corrigan settled in his native Dublin and busied himself with dispensary work. But he was mostly interested in the heart especially in the information that the heart sounds convey.

Within five years Dr. Corrigan had learned a sufficient number of facts to write a paper entitled "On the Motions and Sounds of the Heart," which was published in 1830. From then on he began to devote most of his time to studies on the valves of the heart. He learned to know what these different sounds meant and what type of valve deformity they represented.

The modern doctor is thoroughly acquainted with heart sounds. When he places his stethoscope over the heart, he hears a variety of sounds and he knows just what each sound means. In the normal heart he hears two sounds re-

sembling "lub-dub;" that is, the first sound is similar to "lub" and the second emits a "dub." The first sound is due to the contraction of the power parts of the heart. The second is due to the slap produced when the aortic and pulmonic valves close.

When these sounds are replaced with murmurs, the examining doctor begins to suspect that the heart is not as it should be. A murmur means just that. Instead of a clear, snappy sound, the doctor hears a murmuring sound. There may be a normal first sound and a murmuring second one, a murmuring first and a normal second sound, or both may be replaced by murmurs.

Physicians know that murmurs are produced by a variety of conditions, which, for the most part, are related to the heart valves. Thus, murmurs are produced when the valves are too stiff and short to close, when the valves fail to close at the proper time, when the surfaces of the valves are roughened so as to prevent the smooth flow of blood over them, or when the orifices which the valves are meant to close are dilated as a result of dilatation of the heart chamber of which they form the entrance or exit. The presence of any of these conditions gives rise to eddies in the blood current, and these are directly responsible for the murmur that the doctor hears.

The full significance of these various murmurs was established by Dr. Corrigan. His account of aortic incompetence was entirely original, full of careful clinical ob-

servations and thought. He gave a systematic account based on eleven cases, and he was rather optimistic in his opinion that such patients are not likely to die suddenly. He advocated the use of digitalis, blood-letting and other depletory measures as indicated in the treatment of this heart condition. Much thought was devoted to diseases of the valves and how they could be diagnosed and treated. He discussed stenosis of the valves of the aorta which gave a slow pulse and found that when the valves failed to come together properly the pulse was "invariably full and swelling."

Concerning treatment for diseases of the valves of the aorta. Dr. Corrigan said:

A little reflection on the nature of the disease before us will show that these principles (general and local bleedings, restricted diet, and digitalis) are inapplicable both to the treatment of the valvular alterations, and of the hypertrophy of the left ventricle which accompanies that alteration. The physical condition requires hypertrophy and so we need strengthening of the general constitution, which will give proportional vigor to the heart. Hence, there should be general and sufficient diet of animal and vegetable food, and at the same time abstinence from those beverages, such as malt liquors, which increase the mass of the fluids. The patient may attend to business or profession, but should avoid so much attention as to produce debility. . . . And as there is among patients who have learned that they are afflicted with heart disease a universal dread of sudden death, it is necessary to undeceive them on this point; and in the present instance it can be done with perfect safety, as the termination of the disease is never sudden.

History tells us that Dominic John Corrigan was born December 1, 1802 in Dublin. The son of a poor shopkeeper, his early educa-

tion was obtained at Maynooth, which then had a department for secular students apart from the ecclesiastical seminary. He was attracted to the study of medicine by the physician in attendance. After several years of medical study in Dublin, he followed the prevailing custom of the time and went to Edinburgh where he received his M.D. degree in 1825.

After his return to Dublin, he was appointed physician to the Jervix Street Hospital, which had but six medical beds. During the next four years he studied certain forms of heart disease to such good purpose that he recast the teaching of diseases of the aortic valves. His article on "Permanent Patency of the Aortic Valves" appeared in the *Edinburgh Medical and Surgical Journal* for April, 1832. He was eminently successful as a teacher of medicine. In 1842, the London College of Surgeons conferred on him its diploma. In 1849 he received from the University of Dublin the honorary degree of M.D. In 1866 he was made a baronet and was appointed Physician-to-the-Queen in Ireland.

He was known as a very hard-working physician, and his self-sacrificing devotion during the famine-fever years made him famous. His "Lectures on Fevers" (Dublin, 1853) are a valuable contribution to our knowledge of this subject. He was created a baronet partly as a reward for his services as Commissioner of Education for many years. Dr. Corrigan was a member of Parliament in the Liberal interest for five years

after 1869. He was defeated for re-election in 1874, by the liquor interest which he had antagonized by supporting the Sunday Closing Bill. He was President of the Royal Zoological Society of Dublin, of the Dublin Pharmaceutical Society, and was five times elected President of the College of Physicians in Dublin, an unprecedented honour. His work on heart disease denotes him as a great original investigator in medicine. Trousseau, the French clinician, proposed that aortic heart disease be called Corrigan's disease.

Although Dr. Corrigan was concerned with all phases of medicine, it was with diseases of the heart that he was most concerned. His special attention was directed to the aorta, the largest artery of the body, as well as the heart.

Diseases of the valves of the heart were associated with a variety of structural changes, Dr. Corrigan pointed out. This he recognized in cases in which "the valves may be tightened or curled against the sides of the aorta," cases in which the "valves without any proper lesion may be rendered inadequate to their function by the dilatation of the mouth of the aorta," and others in which "one or more of the valves may be ruptured."

The visible pulsation of the arteries of the head and arms and the murmur synchronous with the collapse of the arteries in the neck were graphically described by Dr. Corrigan. "In these cases in which the deficiency of the valves is considerable, allowing a full

stream of blood to rush back into the ventricle, there is heard in the ascending aorta a double bruit . . . and in listening to the two sounds constituting this double bruit de soufflet, the impression made distinctly on the ear is that the first sound is from a rushing of blood up the aorta, the second from a rushing back into the ventricle. It is impossible to conceive the distinctness with which the impression described is made on the ear." Said Dr. Corrigan: "The heart in all cases in which this occurred was enormously enlarged and its bulk arose from the state of the left ventricle."

Dr. Corrigan was the first to recognize the true significance of enlargement of the heart. "In such circumstances, nature, to enable the heart to perform the additional labor thrown on it, increases its strength by the addition of muscular fiber, and the heart thus becomes hypertrophied, in accordance with the general law that muscular fiber becomes thickened and strengthened when there is additional power required from it. Is this hypertrophy disease, or is it a wise provision of nature, by which the organ is thus made equal to the increased labor it has to perform? On the answer depends the treatment to be adopted, and on this there is no room for hesitation.

A heart of ordinary strength could not, under the circumstances, carry on the circulation; and nature then wisely endows the heart with the requisite degree of strength. It is at once obvious that to interfere with this wise provision of nature, to diminish the strength of the

heart, or, if we choose other words, to direct, according to the advice of Laënnec, Bertin, etc., our measures against the hypertrophy of the organ, to deprive the system of the only power which enables the heart to carry on the circulation . . . the repeated bleedings, the starvings, the enforcement of debilitating measures are totally unsuited to the disease we are considering."

Sir Dominic John Corrigan was one of the great students of the heart. It was he who gave us among the first clear insights into the deformities of the valves of the heart, how they could be detected

and how they should be treated. He also told us why the heart behaves the way it does in health and disease and how it should be managed properly. His name is immortalized in medical literature as the first to describe the Corrigan pulse, a condition caused by an alteration in the valves of the aorta. He was one of the great heart healers.

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FEDERATION EXECUTIVE BOARD MEETING SCHEDULED

The Executive Board of the National Federation of Catholic Physicians' Guilds will hold its annual meeting June 28, 1961. Time: 11:00 a.m. Place: Hotel Commodore, New York City.

The Officers of the national organization and one delegate from each active constituent Guild comprising the Board will conduct business.