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syndrome is a hyperdynamic one which empties rapidly, with an abnormally small end-systolic volume and with the pressure differences being recorded after the ventricle is partially emptied, is agreed upon. Despite the rapid ejection, Ross and co-workers calculated that the percentage of the stroke volume ejected during the phase of contraction in which a significant pressure gradient existed is as high as 70% in some cases.

The allegation that the high pressure records within the body of the ventricle were related to the catheter entrapped in the crevices between the columnae carnea cordis served a useful purpose in jarring investigators out of any self-complacency they may have had in thinking that such had seemed unlikely in their records. Ever since the report of Gauer (Fed Proc 9:47, 1950) I have been impressed with the possibility that cavitary obliteration may take place with the development of a spurious gradient in certain instances. His report indicated that in states of shock in dogs sympathetic stimulation caused pressures, recorded from the left ventricle, that greatly exceed aortic pressures during late systole.

Despite the dramatic relief which may accrue from surgical treatment, physicians have properly not been beguiled into recommending surgical operation for all patients, and in general, they seem to be receptive to the sounder logic, though unproved method, of a pharmacological approach to therapy. The contribution of drugs to the long-term management of the symptomatic patient, and specifically the value of propranolol, are yet to be accurately assessed.

Ross and co-workers have prepared a strong brief in support of the postulate that an obstructive factor exists in the hyperdynamic, hypertrophic left ventricle syndrome. While their investigations, with those of many others, have broached the ramparts on several fronts, the citadel, holding the ultimate truths of the syndrome, is still to be taken.

HOWARD B. BURCHELL

Prelude to the Failure of a Noble Experiment in Public Health

To qualify a man to be a skilled investigator in bacteriology, in physiology, and in chemistry, many years of special training are necessary. If it be realized that before a man is qualified to undertake on the lines laid down an investigation for the prevention and cure of disease—the real object of medical research—he must have a knowledge of symptoms, it will be seen that a training is required which is bound to take a great many years. It is curious that men see the necessity for this in bacteriological, physiological, and chemical research, and will undergo the training, but so far the necessity has not been recognized for such a training before undertaking research in clinical medicine.

I dwell upon this so that we may recognize that to make ourselves competent observers we must ever be learning. When we are face to face with our patients and are unable to detect the nature of their ill health, we must not say to ourselves that the disease is not capable of recognition, but rather say that the signs of disease are there, but we are incapable of detecting or understanding them. This is a humiliating confession but a salutary one, and its recognition will direct attention to the sources of failure.—Sir James Mackenzie: An Address on Clinical Research. In Reports of the St. Andrews Institute for Clinical Research. London, Henry Froude and Hodder & Stoughton, vol. 1, 1922, p. 22.
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L’Interet de la Verite

In general it is better for scientific people to avoid controversy, particularly of
the unpleasant kind that involves questions of priority. Joseph Barcroft once remarked, in a
comment on a complaint by X that Y had been stealing his work:

“X should have been proud that Y thought his work worth stealing.”

And the only time I ever saw W. B. Hardy really angry was when he heard a remark
by Z, that he (Z) could not admit people freely into his laboratory because they might
pilfer his ideas. The complete negation of the scientific spirit, Hardy called it. All his
life Hardy continued to dig out and expose new ideas; if others took them up and
exploited them, that was splendid, it left him free to go on finding new ones.

Honest criticism too can be welcome. One should be proud if other people find one’s
work worth criticizing; but on condition that criticism does not merge into misrepresen-
tation, as too often it does in politics (or antivivisection). Then it must be answered,
otherwise it gets rapidly into reviews and text-books where it may remain, to confuse
non-specialists, for a generation.—Archibald Vivian Hill: Traits and Trials in Physi-
Experiments Illustrating the Operation of the Safety-Valve

Taking a human heart from a body dead within about 24 hours, and in which I could discover no material morbid change of form or substance, I proceeded to remove portions of the sigmoid or semilunar valves of the aorta and pulmonary artery, and to fix tubes into these vessels, with a view to inject the ventricles. I next cut away a large part of the auricles, so as widely to expose their communications with the ventricles: and now, upon injecting the left ventricle through the aorta, the mitral valve became at once firmly closed, and, as seen through the auricle, presented very much indeed the appearance of a continued suture, with a slight prominence or tense bulging sac on either side. The pressure of the syringe and distention of the ventricle being maintained, nothing escaped. Great force was required to disarrange this state, and produce a narrow thready jet. After this, proceeding to the injection of the pulmonary artery in the same manner, and slowly filling the right ventricle, it was quite impossible to produce a similar effect. No position in or out of water, no degree of gentleness or force, no state in anywise natural to the organ that I was able to induce, would prevent a considerable ribband-like stream of regurgitation between the ill-apposed edges of the valve.—T. W. King: An Essay on the Safety-Valve Function in the Right Ventricle of the Human Heart: and on the Gradations of this Function in the Circulation of Warm-Blooded Animals. Guy Hosp Rep 2: 127, 1837.
The Ethics of Hypothesis

...it gradually dawned on me, as I looked at the evidence, that apart from a few substantial facts about myosin threads, most of what was being written and said about "muscle" was hypothesis. And I noticed that those who proposed the hypotheses, often as though they were facts, sometimes neglected to suggest any method by which their theories could be tested experimentally on real muscle. ...

On the first occasion I had asked my friend Professor T. B. L. Webster to help; he constructed a Greek epigram which appeared in the letter to Nature and was posted on the wall of my laboratory. It went: "... a hypothesis which does not admit of tests should not be published." Which, perhaps, was rather hard on the ancient Greek philosophers, even on some modern ones; so many years later I persuaded Webster to construct a more conciliatory version, which goes: ... In English: "are you going to publish a hypothesis? At the same time show us how we can test it." That can be regarded as the minimum obligation of a hypothesizer. ...

Some people may think that all this is just amusing nonsense—perhaps not even amusing. But they miss the point. Knowledge advances by continual action and reaction between hypothesis on the one hand and observation, calculation and experiment on the other. Those who make hypotheses presumably think them out before they publish them; so it should be easier for them than for the rest of us to suggest ways in which their hypotheses could be tested. If they would only try to meet this "minimum obligation," then perhaps scientific literature might be saved from some of what Langley so bitterly described in 1899 as "unnecessarily protracted discussion of unnecessary hypotheses."—ARCHIBALD VIVIAN HILL: Trails and Trials in Physiology. Baltimore, The Williams & Wilkins Co., 1965, p. 360.
the right. Right coronary artery injection caused shifts of the QRS and T wave vectors in the opposite directions. Occlusion of one main coronary artery caused these ECG changes to be minimal or absent.Transient
sinus bradycardia was common with injection of either coronary artery. Serious arrhythmias were rare. The electrocardiogram recorded during selective coronary arteriography can give information useful to the angiographer during the procedure itself as well as during the subsequent interpretation of the angiogram.

References

Stereotyped Tragedy

On Friday morning, March 11th [1955] he awoke in a very gay mood. . . . He got up, and went to have his bath. When he came back he looked very pale and complained of a feeling of nausea. . . . He asked for some hot water to drink, then for bicarbonate of soda. He got to his feet and began to walk about the room. His healthy, vigorous body was trying to shake off the unexpected malaise, refusing to accept it. But he had to give in and go back to bed. . . . Dr. Hunt, who had been alarmed at the anxiety in Lady Fleming’s voice, rang her back. Fleming insisted on taking the call himself.

‘Is it urgent? Shall I leave my other cases and come round at once?’

‘No urgency whatsoever. . . . ‘Look after your other patients first.’ . . . ’

She wanted to take his pulse. His arm was cold. ‘Yes,’ he said, ‘I’m covered in cold sweat. And I don’t know why I’ve got this pain in my chest.’ This time, she felt panic-stricken: ‘Are you absolutely sure it’s not your heart?’ ‘It’s not the heart,’ he said, ‘it’s going down from the oesophagus to the stomach.’ His voice was still strangely calm and serious. It was as though he were thinking deeply and trying to understand. Suddenly his head fell forward. Alexander Fleming was dead.—André Maurois: The Life of Sir Alexander Fleming. New York, E. P. Dutton & Co., 1959, p. 272. (By permission of the publishers.)

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**Sight and Vision**

Believing, as I do, in the continuity of nature, I cannot stop abruptly where our microscopes cease to be of use. Here the vision of the mind authoritatively supplements the vision of the eye.—JOHN TYNDALL.
V8, and V9 arose. The general formula for T vectors in this animal may be expressed:
\[ T_{\alpha_n} = -V_1 \times e_{n-3} + V_2 \times e_{n-3} + V_3 (e_n + e_{n-1} + e_{n-2}) - V_8 \times e_n - V_9 \times e_{n-1} \]

The T waves and loops derived with this formula were shown in figure 6c and d.

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Emerson on Scholarship

There is then creative reading as well as creative writing. When the mind is braced by labor and invention, the page of whatever book we read becomes luminous with manifold allusion. Every sentence is doubly significant, and the sense of our author is as broad as the world. We then see, what is always true, that as the seer’s hour of vision is short and rare among heavy days and months, so is its record, perchance, the least part of his volume.—Brooks Atkinson (Ed.): The Complete Essays and Other Writings of Ralph Waldo Emerson. In The Modern Library, New York, Random House, 1950, p. 51.