CLINICAL PROGRESS

Symposium: Physical Diagnosis—The Scientific Basis

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Scenes of Cardiovascular Progress
and “You Are There”

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T
HE television show “You Are There” is no longer with us, but let us play the game.

The time is 1945. The place is Grady Memorial Hospital in Atlanta, Georgia. Dr. Forssmann’s technic of right heart catheterization has already been accepted as a safe method of studying the circulation, and Dr. André Cournand has already championed its use. Drs. E. S. Brannon, H. S. Weens, and J. V. Warren, working in the Departments of Medicine and Radiology at Emory University School of Medicine, have been quick to pick up the new technic, and on this important day they intend to catheterize the heart of a patient suspected of having an atrial septal defect. The technic is being used by them as a diagnostic tool for the first time—and “you are there.” It is likely that Baldwin’s group, Bing’s group, and Dexter’s group are at this moment doing likewise—medical research is like that. You sense the importance of this medical step and you realize that this new method of study will teach you many things.

The scene just described is from a fascinating historical play called Scenes of Cardiovascular Progress and “You Are There.” The play was written by so many authors that their names cannot be supplied. There are many acts and scenes in the play. Let us examine the manuscript more carefully by considering the title of each act with mere mention of its content.

Act I: Man Observes Man

“You are there” when early man observes a fellow member of his group become yellow, have a raging fever, and die. When another fellow of his group has a similar problem, he assumes that this fellow too will die. This, of course, is not a scientific approach. Centuries later “you are there” when man notes that if most of the members of a group who are yellow and hot die, then this is good evidence that it is not desirable to be yellow and hot. Science is creeping into the picture.

Act II: Physician Observes Man

Hippocrates is the main character in this act. His self-trained eyes, ears, and hands have begun to detect abnormalities that ordinary man does not see, hear, and feel. You recognize his genius as you watch him work. He has learned and is now teaching that if one wants to find the subtle signs of disease he has to search specifically for the signs. By careful follow-up of patients he is learning the significance of many diagnostic points.

Act III: We Learn from Pathology

Morgagni is the hero of this act. “Those who have dissected or inspected many bodies have at least learned to doubt; when

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others, who are ignorant of anatomy and do not take the trouble to attend to it, are in no doubt at all.”

For centuries physicians try to correlate the findings during life with the findings at autopsy. This approach to learning is the only approach until the beginning of the twentieth century. You witness Sir William Osler become the American champion of this approach.

Act IV: We Learn from Physiology

During the seventeenth century, William Harvey is obsessed with the effort to understand the motion of the heart. He and others want to understand the function of the heart during life. Harvey recognizes the complexities of the problem and you hear him say: “I was almost tempted to think with Fracastorius that the motion of the heart was only to be comprehended by God.”

Sir James Mackenzie, working at the beginning of the twentieth century, begins to study the various heart rhythms. The record made by his polygraph teaches him how to interpret more accurately the observations made on his patients. The electrocardiograph machine is just in its infancy. Sir James speaks: “It has been a constant endeavour on my part to recognise the different conditions which these instruments have revealed by employing the ordinary bedside methods of examinations.”

Mackenzie is pointing the way. Cardiovascular physiology, as it relates to bedside care of patients, has arrived.

Act V: The Modern Approach to Function and Structure

The approach to learning cardiology championed by Morgagni and Osler is just as important today as it ever was, but new tools have been developed during the last 50 years. Accordingly, this act has many scenes and many heroes. You are fortunate to be present as each makes its entrance.

Scene 1

The electrocardiograph machine makes its entrance. You recognize the great bedside teacher of cardiology. It is masterful at teaching arrhythmias at the bedside.

Scene 2

Radiology arrives. Developments in radiology are extremely important. At first, the simple x-ray and fluoroscopic findings are correlated with the autopsy findings in true Oslerian fashion. You observe the technic of angiocardiography being developed, refined, and further refined, thereby allowing the study of function as well as structure. Findings from this technic are then correlated with the results of many other new technics.

Scene 3

You see phonocardiography arrive. The study of heart sounds and murmurs is greatly enhanced by modern phonocardiography. As suggested earlier, if one is to learn to recognize cardiac arrhythmias at the bedside, the electrocardiograph machine must be his tutor. It can also be said that if one wishes to learn auscultation, then the phonocardiogram is his tutor. You witness that auscultation is revolutionized during the 1950’s simply because the phonocardiograph recording is correlated with other physiologic measurements.

Scene 4

Cardiac catheterization dominates this scene. As indicated in the introduction to this play, this technic allows us to study the dynamic events within the heart and vessels. All types of data can be obtained — pressures, flows, electrical activity, and sound.

This scene begins with Forssmann catheterizing his own right atrium. You are tremendously impressed with this scene. Next, the technic is used for research purposes. The scene moves swiftly to 1945 when the diagnostic era begins. As the scene moves on, cardiac catheterization is cast first as a researcher, secondly as a diagnostian, and finally as a great teacher.

Scene 5: The Meaning of It All

All of the technics — pathologic correlation, electrocardiography, radiographic technics, phonocardiography, cardiac catheterization,
and other technics not mentioned — are now being utilized by numerous wise men of medicine. These men have correlated the history and physical findings of many normal and abnormal patients with the observations found by using the technics just mentioned. This approach leads the way to the discovery of many new cardiovascular findings and clarifies the meaning of many old signs.

Most of this type of clinical "laboratory" correlation is developed after 1950 — and "you are there."

All during the fifth act — The Modern Approach to Function and Structure — a Greek chorus has chanted continuously. Listen!

Correlate, correlate, correlate —
Correlate the history and physical examination
With the pathologic findings,
And vice versa.

Correlate, correlate, correlate —
Correlate the history and physical examination
With electrocardiographic, phonocardiographic, radiographic and catheterization findings,
And vice versa.

The Greek chorus chants on:

This is possible
Only because of the scientific advances
In physics, electronics, chemistry, et cetera, et cetera, et cetera

Today when we take a history from a patient
And when we examine the heart and blood vessels,
We can think physiologically as well as pathologically.

The diseases have not changed
But we see more, hear more, and feel more
Then we formerly did because
Specialized technics have pointed out new signs for us.

The chant grows louder. What are the chanters saying now?

It is just beginning!
It is just beginning!
It is just beginning!

Now let us look at a character who is standing off stage in the shadows. He has a determined eye and forceful jaw. He carries a long "needle." He is the cardiovascular surgeon. He is the character who has run on stage and into the limelight with increasing frequency throughout the play, and during this time he has grown from a midget to a giant. He has been using his needle to stab physicians and urge them on as they become more skilled in history-taking and physical examination. Now he again comes back on stage and as he sticks the needle into a sensitive area he says: "You didn't do so well with physical diagnosis until we began to repair all types of cardiovascular defects." And the physicians admit that he is entirely correct. Modern physical diagnosis of the cardiovascular system was, in part, forced upon the physicians by their surgical colleagues.

The curtain on the stage does not come down! Can it be that the play is not over? The play must go on because new advances in cardiovascular physical diagnosis continue to be reported with increasing frequency. It must go on because new technics for studying the heart are on the horizon and, as in the past, new technics may bring new vision at the bedside. The golden era of cardiovascular physical diagnosis is now with us and it will be with us for some time to come.

True it is that history-taking and physical diagnosis are skills. No one denies this. It is equally true, however, that modern history-taking and physical diagnosis have a deep scientific basis.

References


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