Medicine for Managers

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Sounds right!

In around 1500 BC the Ebers papyrus, a medical papyrus of herbal knowledge, and amongst the oldest papyri in ancient Egypt, made reference to sounds made by the body. Similar references appeared in the Hindu Vedus written around 1200-1500 BC. By the time of Hippocrates (460-370 BC) disciples were being taught about the importance of breath sounds in determining disease.

It seems surprising that really there was little in the way of developments until the late eighteenth and early nineteenth centuries when physicians began to consider the significance of the sounds made by the body and started to correlate them with both examination of living patients and also information obtained from dissections.

At this time Paris was regarded as a centre of excellence in medicine and the large and extraordinarily busy Necker hospital was held to be in the vanguard. One of the physicians at the hospital was René Théophile Hyacinthe Laënnec who, despite his young age, undertook considerable work on diseases of the chest. He developed a technique called ***percussion*** which involved tapping the chest with the fingertips to hear the sound made. He recognised that that a lung with pneumonia sounded very different from a healthy lung.

NECKER HOSPITAL. — Page 432.

He would also listen to breath sounds using the only technique available to him which was by placing the ear against the chest wall of the patient. He disliked
doing so because of lack of hygiene of many of his patients who were unwashed or lice-ridden.

The story goes that he was called to see an attractive young woman with “general symptoms of a diseased heart”. A hand on the chest and percussion revealed little information and he was reluctant to place his ear on her chest because of her age, sex and her curvaceous assets.

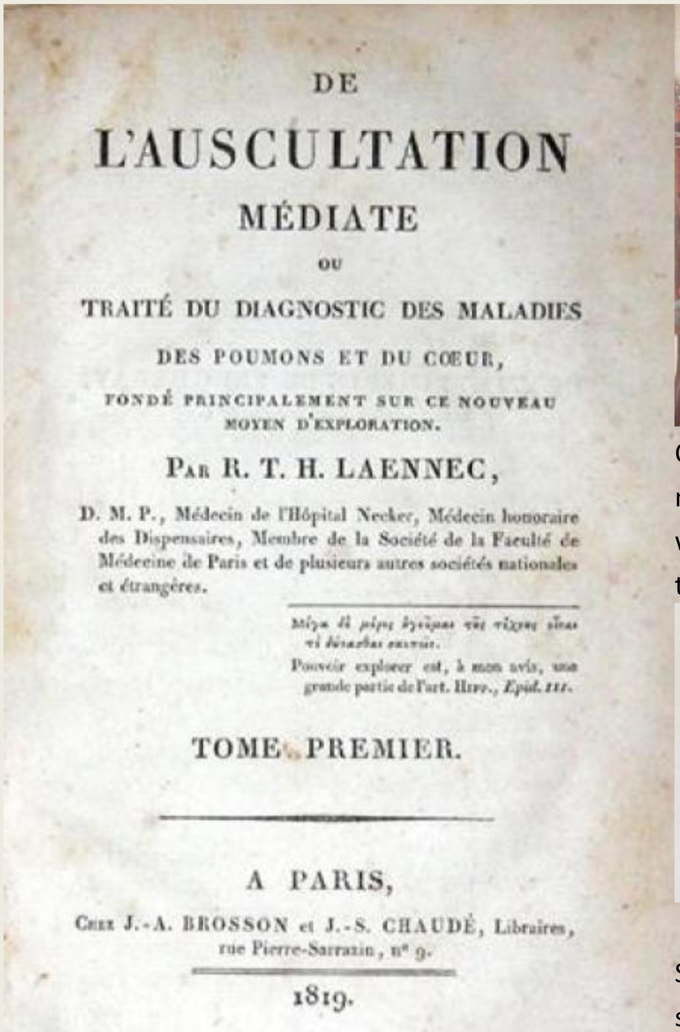
In his embarrassment he remembered an observation he had made whilst walking in the courtyard of the Louvre Palace in Paris. The then 35-year old Laënnec had noticed two children sending signals to each other using a wooden transmitter. He wrote as follows (translated from the French):

“*I recalled a well-known acoustic phenomenon; if you place your ear against one end of a wood beam the scratch of a pin at the other end is distinctly audible. It occurred to me that this physical property might serve a useful purpose in the case I was dealing with. I tightly rolled a sheet of paper, one end of which I placed over the praecordium (area of chest overlying the heart) and my ear to the other. I was surprised and elated to be able to hear the beating of her heart with a far greater clearness than I had ever had with direct application of my ear. I immediately saw that this might be an indispensable method for studying, not only the beating of the heart, but all movements able of producing sound in the chest cavity”.*

And so, in 1816, the stethoscope was created. (derived from two Greek words; *stethos* [chest] and scopos [I see]). Laënnec originally called the device “le cylindre”.

The initial designs were of a cylindrical tube of wood approximately 31 cm long designed in three parts with a wood-screw thread and a brass fitting at the end.

In 1819 he published in two volumes details of the device which would revolutionise so many aspects of the diagnostic process. It cost 13 francs with a stethoscope for an extra 3 francs.


DE

L'AUSCULTATION

MÉDIATE

OU

TRAITÉ DU DIAGNOSTIC DES MALADIES

DES POUMONS ET DU CŒUR,

FONDÉ PRINCIPALEMENT SUR CE NOUVEAU MOYEN D'EXPLORATION.

PAR R. T. H. LAENNEC,

D. M. P., Médecin de l'Hôpital Necker, Médecin honoraire des Dispensaires, Membre de la Société de la Faculté de Médecine de Paris et de plusieurs autres sociétés nationales et étrangères.

Μέγα δὲ μέρος ἡγεῦμαι τῆς τέχνης εἶναι τὸ δύνασθαι σκοπεῖν.

Pouvoir explorer est, à mon avis, une grande partie de l'art. HIPP., *Epid. III.*

TOME PREMIER.

A PARIS,

CHEZ J.-A. BROSSON et J.-S. CHAUDÉ, Libraires, rue Pierre-Sarrazin, nº 9.

1819.

The first actual record of the stethoscope being used for the examination of a patient was in a manuscript produced by Laënnec two years earlier in 1817. The patient was a forty-year old woman called Marie-Melanie Basset.

Over the subsequent years the design was modified and stethoscopes of various lengths were prepared with variations of the design of the end of the tube to include a bell.

Some stethoscopes became fashion accessories such as the one below made of ivory.

Laënnec pursued his studies of chest disease vigorously and with his rudimentary monaural stethoscope was the first physician to identify and distinguish chest conditions including

tuberculosis, bronchiectasis, empyema, pleurisy and pneumothorax.

The actual technique of listening to sounds was now called ***auscultation***, derived from the Latin word *auscultare* – "to listen".

Sadly Laënnec, who was a devout Catholic, did not live to fulfil the promise of his considerable medical expertise, succumbing himself in 1826 to consumption (tuberculosis), the disease he studied in such detail.

In 1829 the first flexible stethoscope may have been produced with wooden flexible joints but in 1840 Bird produced a stethoscope, still with only a single earpiece, made of flexible tube. Eleven years later, Leared, an Irish physician, invented a binaural stethoscope and the following year Cammann improved the design and it went into commercial production.

Really little changed between 1850 and the 1940s when Rappaport and Sprague designed a new stethoscope which became the standard.

It had two sides to the chest piece so that one could be used for listening to the respiratory system and the other to the cardio-vascular system. The stethoscope had two latex rubber tubes with two chrome-plated ear pieces joined by a leaf spring

In the 1960s Professor David Littman of Harvard created a new design which was lighter with improved acoustics. The stethoscope was manufactured by 3M and the now almost universally used device is now the standard

Littman stethoscope

Rarely is an examination complete without the use of the stethoscope. In the 1850s, a modification of the stethoscope was developed for use in the examination of unborn children. Developed by Dr Adolphe Pinard, the Pinard was initially made of wood but is now constructed in plastic. The bell end was placed

on the mother's abdomen and the ear at the other end. It is very effective for hearing foetal heart sounds. It is still in general use in

Pinard stethoscope

many parts of the world and was the standard in the UK until the development of the Doppler Foetal Monitor in the late 1950s.

Doppler foetal monitor

All clinicians take for granted the stethoscope. Whether carried discretely or as a fashion

accessory defining occupation it remains a central component of healthcare.

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