AUENBRUGGER, LAENNEC, AND JOHN KEATS

SOME NOTES ON THE EARLY HISTORY OF PERCUSSION AND AUSCUTLATION*

by

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FRIAR IÑIGO ABBAD, the eighteenth-century historian of Puerto Rico, refers in sarcastic terms to Ponce de León, who went to Florida to look for the Fountain of Youth and who came back older than he was when he set out.[1] Although travel to Florida has unquestionable merit, there is an alternative method of rejuvenation which I wish to recommend. It consists of seeking one's youth by seeking out the company of the young. By such ratiocination we conclude that an evening spent with the Osler Society in the month of February is preferable to a fortnight on the sands of Miami.

All those who have been through the mill of medical schooling and almost all of those who are in the process of being milled will remember the difficulties they experienced while learning physical diagnosis. Accordingly it has seemed appropriate to select for presentation this evening a discussion of the history of that art. Since I am your guest and not your anesthetist I shall limit my remarks to a short part of the long narrative.

The Traditional Account

Let us begin by recalling the traditional story. It is often said that Leopold von Auenbrugger (1722–1809), an innkeeper's son, observed barrels of wine or beer being sounded in his father's cellars. The bright boy later studied medicine and treated his patients like beer barrels. This led to his great discovery of thoracic percussion, which he announced with the statement that *thorax . . . sonat si percutitur*, i.e. empty patients make the most noise. Auenbrugger's work was ignored by his colleagues, who repudiated any comparison between patients and beer barrels. Thus the valuable innovation lay in obscurity until it was rescued by Baron Corvisart, Napoleon's physician. Corvisart practised and taught percussion. As a result of this high-echelon publicity, the art of percussion was permanently added to the burdens of medical students. These poor fellows, like the infernal apprentices of Vulcan

illi inter sese magna vi bracchia tollunt,

which can be translated as

with mighty arms they smite and thwack
the patient on his chest and back.

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The traditional folklore about Laennec is as follows. Since he was not an innkeeper's son, he did not hear beer barrels being percussed. Instead, he was a gentlemanly Frenchman of delicate sensibilities and he couldn't bear the thought of putting his head directly against a lady's chest, especially since the patient was fat and he had already palpated her in vain. But how could the art of mediate auscultation be discovered? With rapid Gallic perception—the same *flair*, *éclat*, *esprit*, *and élan* that were later to appear in his compatriots Arsène Lupin and Inspector Maigret—Laennec rolled up a pad of paper into a tight cylinder,[2] and the problem was solved. Nothing was left but the labour of discovering and naming the physical signs, dissecting the patients, and drawing morbid conclusions. Ultimately there was one more course for the Committee to add to the curriculum.

Both the traditional story of Laennec and that of Auenbrugger contain elements of truth but they require modification, since new facts have come to light.

Although it is well established that Auenbrugger was the son of an innkeeper, the attribution of his discovery to childhood experiences at the inn is merely a clever guess by the Viennese historian Max Neuburger. Indeed, Neuburger himself did not consider his guess to have been supported by adequate evidence.[3] Some other ingredient seems requisite if we are to explain the discovery more satisfactorily.

Recent Developments

In 1957 I undertook to try out the techniques of Auenbrugger and Laennec on normal persons in routine office practice. Since history is not an experimental science—indeed it is not a science—and since genuine experimental scientists are present this evening, I mention my uncontrolled and unpublished experimental trials with appropriate diffidence.

Auenbrugger wrote that the thorax ought to be struck slowly and gently with the fingertips, the fingers being brought close together and at the same time extended. During percussion the patient's shirt was to be drawn tightly over his chest in order to suppress extraneous noises. Alternatively the physician's hand might be encased in a leather glove. During percussion the patient was first to breathe in a natural manner and then he was to hold his breath in full inspiration. The physician was to compare the sounds elicited during different phases of the respiratory cycle.

I attempted Auenbrugger's percussion in four normal male patients and found that cardiac dullness and hepatic dullness could not be determined without great difficulty and uncertainty. With Laennec's roll of paper the results of mediate auscultation were also extremely meagre. From these trials it seemed incredible that Auenbrugger and Laennec were able to make their discoveries. This applies especially to Laennec, who found and named an entire corpus of diagnostic signs. Clearly both these men must have possessed trained sensoria in addition to ample faculties of intellection.

There is much evidence that Auenbrugger was musical. Not only did he

and his family participate in musical performances at home, but he wrote the libretto of an opera called *Der Rauchfangkehrer* (The Chimney-Sweep),[4] which was performed repeatedly in Vienna and elsewhere between 1781 and 1788.[5] The music was composed by Antonio Salieri, who was an enemy of Mozart and one of the teachers of Beethoven. Thus it would seem that Auenbrugger's musical abilities may have contributed to his discovery of thoracic percussion.

Information of another kind has recently been adduced by Dr. Erna Lesky of Vienna.[6] Dr. Lesky has shown that Auenbrugger's teacher Van Swieten regularly employed abdominal percussion as a means of distinguishing ascites from tympanites. Hence it is probable that Auenbrugger used his excellent sensory apparatus to extend the range of a diagnostic technique which was previously applied in a more limited way.

I have mentioned the traditional belief that Auenbrugger's work on percussion of the thorax was neglected from the time of its publication in 1761 until the work of Corvisart in 1808.[7] We now have one new piece of information to put in this lacuna. In August, 1761, a few months after Auenbrugger's *Inventum Novum* was published, the book was reviewed anonymously on the front page of a London newspaper, the *Public Ledger*. Professor Ronald Crane has presented evidence that this review was written by Oliver Goldsmith. The reviewer, after summarizing Auenbrugger's technique, concludes as follows:

> Such are the outlines of this new discovery: whether it may be of use to society or not, there is no necessity for me to pretend to determine, only this may be observed, that the lungs are often even in the most healthy state, found to adhere to the pleura, and in such a case, I fancy the sound would, in that part, deceive the practitioner; however, I shall not pretend to set my conjecture against his experience. Upon the whole, it is a trial that may be easily made, and to borrow an expression from Dr. Rock, *If it cannot cure, it can do you no harm.*[8]

Despite this review in a London newspaper, the preponderance of evidence indicates that Auenbrugger's discovery received little attention for about forty years. William Cullen, the great eighteenth-century medical teacher, stated in his *First Lines of the Practice of Physic* that he had heard of the method proposed by Auenbrugger but had not used it. This dictum can be traced in successive editions of Cullen from 1778 to 1822 (long after Cullen's death). Since Cullen was for many years a leading clinical teacher of students from British America, his statement may have delayed the introduction of percussion in Canada and the United States, as well as in England.[9]

Let us now return to Laennec. In reading his *Traité de l'Auscultation Médiate*[2] one is impressed by the frequency of musical references. For example, in describing the propagation of vocal resonance along the bronchial passages he says that everyone knows the difference between the sound of the hunter's horn and the drone of the bagpipe.[10] In his account of pectoriloquy he involves himself in a discussion of the diapason and embouchure of the German flute.[11] In cases of pleural effusion the flattened bronchi are compared to the reed of a bassoon or oboe.[12] Sonorous rales are compared to the sound produced by rubbing a bass string. And, most interestingly of all, a murmur heard over the

carotid artery is compared to a slightly diminished major third, and is described in the text *in musical notation.*[14] After these observations it was no surprise to learn from biographers that Laennec played the flute frequently and passionately. Hence we are justified in the surmise that in his case, as in the case of Auenbrugger, musical ability may have contributed to medical discovery.

John Keats

Laennec's treatise on mediate auscultation was published in 1819. In February 1820 the poet John Keats suffered a haemoptysis. In March 1820 he was examined by Dr. Robert Bree (1759–1839), the asthmatic author of a book on asthma.[15] There is no evidence that Dr. Bree employed percussion or auscultation in examining Keats, and he failed to make the diagnosis of tuberculosis. The symptoms steadily progressed. In the autumn of the same year, 1820, the poet travelled to Italy in search of health. In Rome he was placed in the care of Dr. James (later Sir James) Clark (1788–1870). Available evidence indicates that Dr. Clark did not immediately offer the diagnosis of tuberculosis, whatever he may have privately surmised. In the presence of anorexia, depression, and repeated haemoptysis he recommended a regimen *which was usual at that time*, i.e. restricted diet, phlebotomy, and the mild exercise of horseback riding. By January 1821 Clark stated that the poet's lungs were diseased. Late in February Keats died. The autopsy revealed extensive pulmonary lesions.

In her famous biography of Keats, Miss Amy Lowell pronounced the following judgement:

> Everything that ignorance could blunder into, every mistake of practice which could be made were done and made with the best possible intentions by Dr. Clark. He meant well, but the tale is heart-rending. A perfectly just summing up of him is, I think, that he was a poor doctor, with a kindly heart and a pleasant bedside manner.[16]

Miss Lowell's severe opinion of Dr. Clark is based upon a misunderstanding of the condition of medical knowledge and practice in 1820. This is pardonable in a lyric poetess. When she accuses Clark specifically of ignorance she is mistaken, as I shall presently show. Part of Miss Lowell's error is shared by Sir William Hale-White, who says in his book on Keats that Laennec's *Treatise* was unknown in England before 1821. He adds 'of all that is contained in it Keats's doctors were ignorant'.[17]

The facts are different from what Miss Lowell and Sir William Hale-White supposed. Dr. Clark had travelled on the Continent in 1818–19 as the medical attendant of a tuberculous patient and had profited by the opportunity to see the latest developments in European medicine. He published his observations in 1820 under the title *Medical Notes on Climates, Diseases, Hospitals and Medical Schools, in France, Italy, and Switzerland.*[18] In this book Clark states that he frequently visited the Hôpital Necker in Paris 'with the view of ascertaining the utility' of Laennec's diagnostic method. Here Clark witnessed repeated demonstrations of stethoscopy and he described the instrument in his book. He says:

I found, however, that it would require more time than I had to bestow to make myself fully acquainted with the use of this instrument. Nevertheless I observed enough to convince me that much useful information is to be acquired through the medium of this instrument in distinguishing the disease of the different viscera of the throax.[19]

Clark's visits to Laennec's wards occurred in 1819. In the autumn of the following year, 1820, Clark took over the care of John Keats in Rome.

It would be pleasant to relate that Clark, fresh from his tour of observation in Paris, applied the stethoscope to the chest of the poet and at once established the correct diagnosis. Unhappily such was not the case, and the remainder of the story is anti-climax. In the Houghton Library of Harvard University there are three letters of Clark, which deal with the illness of Keats.[20] These contain no evidence that Clark used the stethoscope on the sick poet. We must conclude that at this time, although Clark was acquainted with the new instrument, he had not mastered it and had not yet adopted it for routine use.[21] More than a decade later, in 1835, Clark contributed a massive and masterly article on Tubercular Phthisis to the *Cyclopaedia of Practical Medicine*.[22] His essay contains a just appreciation of Laennec and an ample description of the auscultatory signs of pulmonary tuberculosis. Thus James Clark, who was not ignorant in 1820, was both learned and experienced by 1835.

In the light of historical analysis it becomes clear that the treatment of poor John Keats represents not the individual ignorance of an inferior practitioner but an early stage in the development of a difficult art. As students and practitioners of that art we do well to look backward occasionally, contemplating the painful degrees by which we did ascend.

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7. Neuburger (*op. cit.*) mentions a few reviews and translations published during this period.

8. CRANE, R. S. editor: *New Essays by Oliver Goldsmith.* Chicago, Univ. of Chicago Press, 1927, pp. 64–8. *See also* JARCHO, S. 'A review of Auenbrugger's *Inventum Novum*, attributed to Oliver Goldsmith', *Bull. Hist. Med.*, 1959, XXXIII, 470–3.
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10. Laennec, *op. cit.*, p. 44.
11. *Ibid.*, p. 46.
12. *Ibid.*, p. 53.
13. *Ibid.*, p. 69.
14. *Ibid.*, p. 743.
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17. HALE-WHITE, SIR WILLIAM. *Keats as Doctor and Patient.* London, Oxford Univ. Press, 1938, p. 72.
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19. CLARK, JAMES. *Op. cit.* London, 1820, p. 153. See also JARCHO, S. 'Early Impressions of Mediate Auscultation by James Clark', *Amer. J. Cardiol.*, 1959; III: 254–6.
20. LOWELL, AMY. *John Keats.* Boston: Houghton Mifflin, 1925, II, 501–2, 511, 515–16. Of these three documents the first two are copies of excerpts, the third is not indisputably in Clark's handwriting. Full texts are given in ROLLINS, H. E., editor: *The Keats Circle; Letters and Papers, 1816–78.* Cambridge, Harvard Univ. Press, 1948, I, 171–2, 185–6, 193–5. I am indebted to Miss Mabel A. E. Steele, Curator of the Keats Collection, Harvard University, and to Mr. William A. Jackson of the Houghton Library at Harvard for their kindness in directing me to Prof. Rollins' book and for supplying other information.
21. Rouxeau, however, says: 'A Rome, James Clark, qui s'y était mis à faire de la médicine, étudiait avec ardeur la nouvelle méthode chez tous ses compatriotes que leur état de santé amenait à faire une cure de soleil en Italie.' ROUXEAU, A. *Laennec Après 1806.* Paris, Baillière, 1920, p. 244. Rouxeau offers no proof.

    Sir Charles Hastings, celebrated founder of the British Medical Association, is believed to have used the stethoscope for the first time in the summer of 1820. MCMENEMEY, W. H. *The Life and Times of Sir Charles Hastings.* Edinburgh, Livingstone, 1959, p. 44. For developments in the subsequent two decades see KING, LESTER S. 'Auscultation in England, 1821–27', *Bull. Hist. Med.*, 1959, XXXIII: 446–53.
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