Middle Articles

MEDICAL HISTORY

Uses and Abuses of Medical History*

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The uses of medical history have not yet been adequately recognized. It is time that the history of medicine was brought out of its isolation in a dead past into contact with the living present, in which it can assert its usefulness to medicine. How is this to be done? I feel that a consideration of the uses and abuses of medical history will lead us a long way towards the answer. In the past the connexion between medicine and its history has often been tenuous. This is partly a result of its excessive localization into nations and continents. Times are changing. We can now reach any part of the globe in a matter of hours, and make contact with medicine at all stages of its historical evolution. This is a condition of the present—and the future. More and more, therefore, will it become necessary to have some comprehension of the history of medicine as exemplified in all the countries of the world.

Clinical History

Even at home the history of medicine permeates our daily clinical practice. We see this in our clinical methods. No doctor can practise in a chronological vacuum, for the clinical methods he uses are themselves a filtrate of the past. Their intelligent selection requires a knowledge of those methods of the past which have failed as well as those which have been successful. This even applies to that most well tried method of all—the clinical history. The general acceptance of the importance of this part of clinical examination betrays the fact that doctors, albeit subconsciously, do recognize the value of the historical method in obtaining knowledge. It did not come fully fledged out of a hat. Hippocrates and Galen in spite of their greatness never appreciated the importance of a systematic clinical history which includes negative as well as positive observations. Indeed, the clinical history did not make its full debut until the beginning of the nineteenth century. It arose in Paris with Napoleon's physician, Corvisart, continuing with Laennec, Louis, and Andral. Their systematic history and examination was set out by Martinet (1827), physician to the Hôtel Dieu, in a little book with a rather surprising and cumbersome title.

Martinet tells his readers, "The first part of this work is intended as a clinical guide . . . it contains a brief statement of the necessary requisites for the proper conduct of clinical pursuits." He then constructs an elaborate system of history-taking, which, it is pointed out, must be modified to suit the particular nature of the case. The thoroughness with which he went into the problem is illustrated by the accompanying Table, by which he summarizes the subject. All the headings therein are discussed in the text. Martinet writes: "The observer should be free from prejudice and prepossession if he wishes to avoid giving to his observations an erroneous direction. . . . He should see things as they really are, not as he may wish them to be. The duty of an observer is that of an historian, from that he should not depart; his chief merit is correctness and fidelity." Two points about Martinet's remarks should give us food for thought today. First, his recognition that a doctor must have in him the capacities of a historian, and, secondly, his acceptance of historical observation as a science. In the years since Martinet wrote both points have become obscured, if not forgotten, but they have not lost their truth.

Martinet's Table Summarizing the Form of the Clinical History

- 1. Previous History
  - History of the Family
    - Ascending
    - Descending
    - Collateral
  - History of the Patient
    - During Health
      - Habits
      - Regimen
      - State of Functions
      - Sympathies
      - Constitution
        - Active
        - Passive
        - Ataxic
        - Refractory
      - Temperament
        - Sanguineous
        - Lymphatic
        - Nervous
      - Idiosyncrasies relative to
        - Morbid Susceptibility
        - hygienic agents
        - Medicinal agents.
    - During disease, observing the Critical Periods
      - Infancy
      - Puberty
      - Adult age
      - Critical period
      - Old age
  - History of the present Disease considered in its
    - Causes
      - Predisposing
      - Occasional
    - Previous circumstances
    - Attack
    - Progress
    - Termination
    - Present condition
- 2. Present State
  - Habit of Body—The Skin
  - Face
  - Intellectual System
  - Apparatus of Sensation
  - Digestion
  - Respiration
  - Circulation
  - Locomotion
  - Secretion
  - Generation
- 3. Termination in
  - Health
  - Other Diseases
  - Death—Morbid Appearances

Method of Acquiring Knowledge

Preoccupied as we naturally are by the momentous advances in medicine through the application of physics and chemistry to our problems, we have almost completely forgotten that history, too, is a science—that is, a valid method of acquiring knowledge. Its methods, however, differ from those of the so-called "natural" sciences because its subject-matter is different. Whereas the natural sciences gain their data by

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quantitative observation and experiment, historical science gets its information from a witness, most often human but sometimes vegetable or even mineral. The human witness is tested by cross-questioning ; information is verbal ; it is extorted from him often willingly, sometimes unwillingly, and sometimes even when he is not conscious of expressing it.

Since the events with which history is concerned are entirely within the time dimension of the past, they can neither be observed by the senses nor tested by experiment. The technique of acquiring such historical data is closely allied to the forensic method. The doctor in his consulting-room sets himself a task of acquiring information similar to that undertaken by a court of law, where the apparatus for obtaining information from witnesses, elaborated to the full, is utilized by a judge and a jury. How successful or unsuccessful the doctor is in this task there is no objective way of telling. However, if the form of his education is such that he is not taught anything about historical method either in the general or in the medical field it is not surprising to find many doctors rather poor at the task.

From time to time during the last century of rather tumultuous assimilation of the natural sciences into medicine isolated physicians have voiced a plea for the importance of the clinical history, which they felt was being submerged. One of the greatest of such advocates was Sir James Mackenzie. He expressed this vividly in his forecast in *The Future of Medicine* (Mackenzie, 1919). Here he tells how as he became more experienced his appreciation of the value of the patient's history increased. He writes: "The knowledge I have acquired of the methods and the information I have gained thereby show that there is in the patient's sensations a field of enormous value, but it requires a long and tedious training before the physician becomes capable of fully utilizing this method of examination."

The "long and tedious training" to which Mackenzie refers he gave himself, for there was no one else capable of doing it ; and few consider the need of giving it even now.

What was this "field of enormous value" to which Mackenzie referred ? He had rediscovered, as has to be done in each generation, the old Hippocratic truth that the time picture of disease obtained by the historical approach gives a great deal of valuable information for prognosis. It is to be noted that this prognostic value of symptoms and signs does not lie in their mere accumulation but in their selection. This was what Hippocrates had discovered from his case histories and expressed in the form of his prognostic aphorisms, quite a number of which still hold true. Mackenzie, with his similar genius for selecting significant symptoms, contrived to sort out many of the prognostically serious from the trivial forms of cardiac irregularity. Now such selection of important events constitutes the very essence of the method of the historian.

Historical Methods

With the importance of history-taking generally recognized by clinicians it is surprising how little attention we in medicine have given to the development of different techniques of obtaining historical evidence. However, our historical methods are evolving, albeit subconsciously. In psychiatry, for example, the special developments of history-taking by free association and drug-induced communication demonstrate the possibilities of exploring for information at different levels of consciousness. And the importance of the patient's genetic history has been recognized for centuries ; even Martinet gave it an important place. In 1859 Charles Darwin with his concept of evolution integrated the historical and natural sciences. This historically sensitive scientist saw time as the thread along which natural variations are intelligible, variations which have been transmuted into changes in chromosomes with their genes, and finally into a code of protein synthesis. Already this newly acquired knowledge can carry the patient's history, by means of such factors as blood groups and abnormal haemoglobins, back into centuries of inherited disease ; the tracing of South African porphyric families through tombstones and parish registers, etc., back to the original immigrants of 1688 is an instance of applied medical history.

Martinet's statement is justified therefore ; the historical method of science is in fact still used in medicine, and is evolving in such fields as psychiatry and genetics. It exists in the form of the clinical history, which evolves almost subconsciously, overshadowed as it is by advances in the application of the natural sciences to medicine. Could we not increase its value and usefulness if we consciously and conscientiously studied the potentialities of the clinical history by applying modern methods of recording and data-processing ?

What I have said about the clinical history applies also to the larger field of the history of medicine itself. The clinical history draws its importance in the investigation of the patient from its introduction of the time dimension into the case. In this it provides a model of the whole subject of the history of medicine ; for this, in the larger organization of human society, takes cognizance of the influence of time, it supplies a pattern and a context within which we can view the results of those clinical investigations which utilize the natural sciences. It thus gives them movement and direction, another dimension of meaning.

Diagnostic Methods

If we take a brief glance at the history of our methods of physical examination of the patient we find another useful vector revealed. Our present methods of clinical investigation constitute a filtrate from a multitude of past methods. Apart from practicability and expense, are there any deeper principles upon which this selection has been made ? Diagnostic methods may rise and fall rapidly or slowly. Slow alteration of evaluation of a technique is well illustrated by percussion. In 1761 this procedure was practically unknown. In that year Auenbrugger brought out his little book describing the method. It was ignored until Morgagni's volumes on the *Sites and Causes of Disease* took root in medical consciousness. Once it was appreciated that morbid anatomical changes really took place in life, and that percussion could detect some of them, the method came into general use ; this was about 1808. At that time it justified Auenbrugger's original claim that "diseases of the worst description may exist within the chest unmarked by any symptom, and undiscoverable by any other means than percussion alone."

It was not long before this use of sound in medical diagnosis was supplemented by Laennec's introduction of the stethoscope. For nearly a century the doctor's ear rivalled his eye as a diagnostic instrument for disease in the living patient. Then in 1896 came Röntgen with his *x*-rays, which *visualized* morbid anatomy and physiology *in vivo*. Information from alterations of pitch or resonance of the percussion note was far less refined than that from a sensitively graded *x*-ray shadow. Thus percussion lost the position that Auenbrugger had claimed for it. Today, observing a chest physician at work one notes the dominant place of the *x*-ray film and the very subsidiary part played by both percussion and auscultation. Yet percussion itself, visualized by a spectral phonocardiogram, presents new features in the frequency analysis of its sounds. May there not be information here of a nature worth further investigation ? I feel sure that Auenbrugger himself would have welcomed this new shape of percussion and inquired into it further.

Like percussion, all other methods of physical examination, as well as special investigations, have to compete to survive. Auscultation has done rather better than percussion. What it may have lost in the chest it has of recent years gained in the neck and abdomen. But the encroachment of the phonocardiogram once more shows the shape of things to come (Fig. 1). When it becomes as technically simple to *see* breath or heart

sounds as they are at present heard the visual stethoscope will inevitably replace Laennec's auditory instrument.

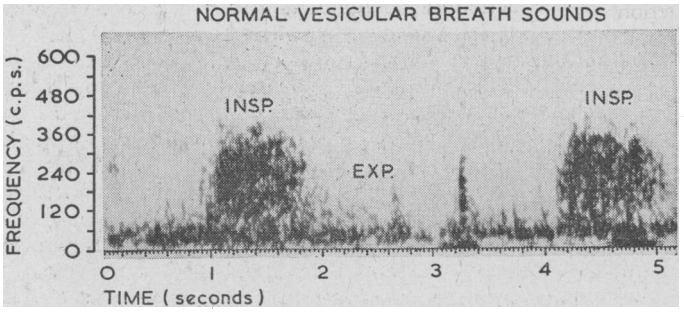

FIG. 1.—The breath sounds visualized by phonocardiogram. By permission from V. A. McKusick's *Cardiovascular Sound in Health and Disease*, Fig. 472. Williams and Wilkins, Baltimore, 1958.

In these examples history gives us clear and useful guidance on how to select our methods of clinical examination. Here the eye is a more scientific instrument than the ear, for visual information can be quantitated, while auditory information cannot. Progress therefore is to be obtained by visualization for the sake of measurement; and the choice between methods should be made on this basis (Keele, 1964).

If diagnostic methods are subject to this evolutionary law of the survival of the fittest for measurement, how about methods of treatment? Here the criteria of selection are more difficult. Drugs must always make their reputation on a cause-and-effect basis, on the *post hoc ergo propter hoc* line of reasoning, the truth or fallacy of which can only be revealed statistically. At a certain level of ignorance even this method cannot resolve all our difficulties of assessment of the results of treatment. In illustration of this point I would like to draw attention to some of the features of the story of digitalis.

Withering's Therapeutic Problem of Yesterday and Ours Today

Withering's contact with the old woman of Shropshire is very well known. He obtained her brew because she had gained a reputation for successfully treating cases of dropsy where the doctors had failed. With astonishing ease he selected the foxglove from the other ingredients of the brew as its active agent. He then prepared the dried leaf of digitalis, eventually prescribing it to dropsical patients in doses of 1–3 gr. (65–200 mg.), the same as that used today. In 1785 he reported his experiences, and it is commonly believed that henceforward digitalis made plain sailing towards acceptance and success. This was not so.

Great observer as he was, Withering shared the contemporary ignorance of the causes and types of dropsy. He saw it as a disease in itself and had no suspicion of its renal, cardiac, nutritional, and lymphatic varieties. Neither he nor anyone else at that time had any knowledge of the syndrome of congestive heart failure, or of the types of cardiac arrhythmia; an irregular heart was an irregular heart to him. He did, however, notice that, "if the pulse be feeble or intermitting, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, or the anasarcous limbs readily pitting under the pressure of the finger, we may expect the diuretic effects to follow in a kindly manner." We, retrospectively, read into this wonderful clinical description the state of atrial fibrillation and congestive heart failure. Withering saw nothing of the sort, only a form of dropsy which responded well to digitalis therapy. This becomes very evident when one reads on to his account of post-scarlatinal dropsical patients seen in 1779. "The symptoms," he writes, "were in all very much alike, and they were all without an exception cured by the foxglove. This last circumstance encouraged me to use the medicine more frequently than I had done before." Clearly Withering was in fact caught in the pit of the *post hoc ergo propter hoc* fallacy regarding this group of nephritic cases. However, such is the irony of history that this very deception encouraged him to the further use of digitalis in cases of cardiac failure.

Withering tells the next stage of the story in these words: "Dr. Stokes communicated to the Medical Society at Edinburgh the result of my experience of the foxglove; and in a letter addressed to me in November following, he says, 'Dr. Hope in consequence of my mentioning its use to my friend Dr. Broughton has tried the foxglove in the Infirmary with success.' Dr. Stokes also tells me that Dr. Hamilton cured dropsies with it in the year 1781." From this paragraph it looks as if digitalis had been successfully launched. But Withering sounds a prophetic note of warning when he adds: "At length in the year 1783 it appeared in the new edition of the *Edinburgh Pharmacopoeia*, into which I am told it was received in consequence of the recommendation of Dr. Hope. But from which I am satisfied it will be again very soon rejected, if it should continue to be exhibited in the unrestrained manner in which it has heretofore been used in Edinburgh, and in the enormous doses in which it is now directed in London."

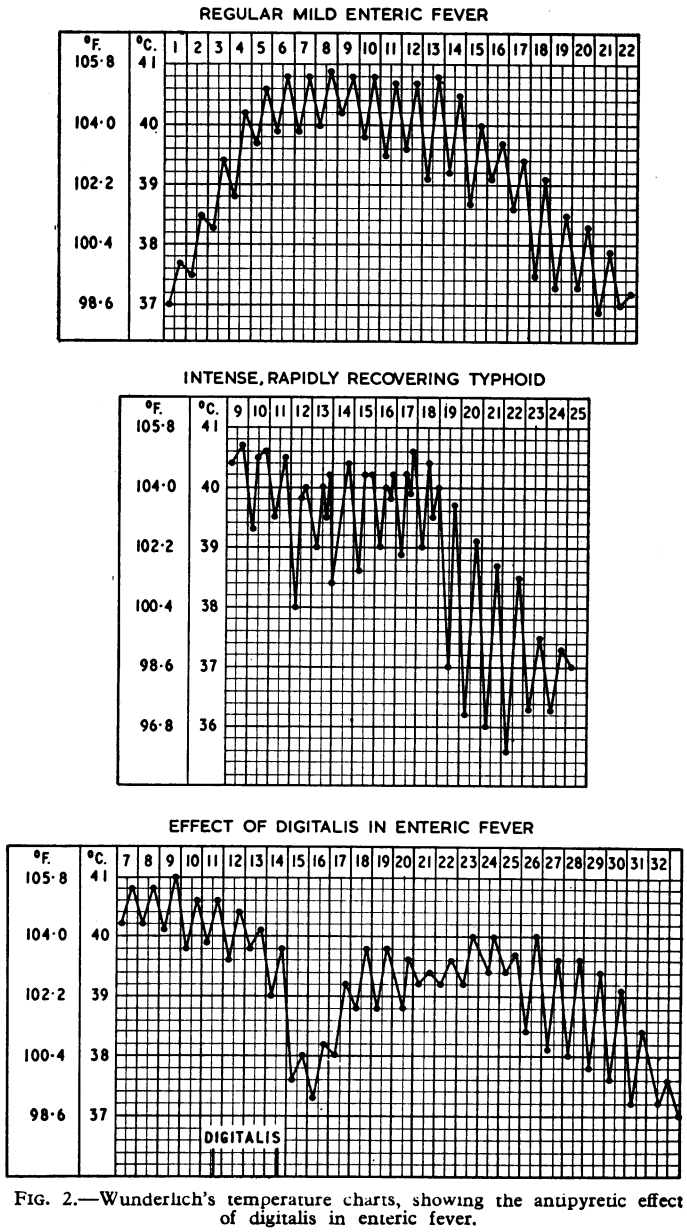

FIG. 2.—Wunderlich's temperature charts, showing the antipyretic effect of digitalis in enteric fever.

Withering's forebodings were only too justified. Lettsom in London reported failure with digitalis as a diuretic, but he did note its action in slowing the heart. This, paradoxically enough, led to further misinterpretation. Since the days of Galen fever had been looked upon as due to the rapid action of the heart whereby it created and dispersed an excess of vital heat throughout the body. Harvey's discovery had not affected this belief. The observation that digitalis slowed the heart rate was therefore thought to indicate an antipyretic action in fevers of all kinds, such as tuberculosis and typhus. For *this* action it became accepted. Steggall (1858), in describing the action of digitalis, wrote: "The most remarkable property of digitalis is its influence on the heart. The pulse is found to be much reduced in frequency, in some cases as low as 30 beats per minute. In consequence of this impression on the pulse digitalis may be useful in some inflammatory diseases. The diseases in which it is most used are pleuritis, phthisis, mania, epilepsy, and pertussis. By repressing the excited movement of the heart it is useful in aneurisms, hypertrophy of the heart, and the gouty and rheumatic irritation of the same organ. It may in fact be used in inflammatory disease generally."

In 1868 Wunderlich produced his pioneer work on medical thermometry. In it he reports and illustrates (Fig. 2) the antipyretic action of digitalis in enteric or typhus fever.

How did digitalis ever escape from this web of misconceptions? Partly it was through the work of physiologists like Ludwig and Cushny; partly, too, through Nativelle's isolation of "digitalin" in 1872. But by far the greatest elucidation came from revelations in medicine apparently quite unconcerned with digitalis; through Bright's description of the renal form of oedema, separating it from the cardiac form; later through clinicians like Watson noting that digitalis produced its most effective diuresis in cases of cardiac oedema. Then digitalis was noted to be particularly effective in cases with mitral disease in contrast with those with aortic-valve disease. In fact about the year 1900 aortic-valve disease was looked upon as a strong contraindication to its use. In the final stage, after Keith and Flack had identified the sino-auricular node, Mackenzie described "auricular paralysis" and Lewis introduced the term "fibrillation" to describe the cardiac irregularity which responded particularly well to digitalis.

It will be seen that progress in the knowledge of the value of digitalis was in fact due more to the lifting of veils of ignorance from oedema, mitral disease, and the cardiac arrhythmias than to work on digitalis itself. When these obstacles had been overcome Mackenzie and Lewis, who had themselves lifted the last veil, soon saw the nature of the action of digitalis in modern terms.

Conclusion

If we now try to put ourselves in Withering's place we can see how insuperable were the obstacles to his understanding the action of digitalis, obstacles he could not possibly have guessed at, let alone removed. How many of us today are in Withering's position with regard to the drugs we are using? How many of us are so ignorant of the pathological physiology of the diseases we are treating as to have no hope (even should we possess Withering's genius) of understanding the action of the drugs we are using? How often, indeed, are we in the even less enviable state of Steggall and Wunderlich, in which we have been led up a blind alley? One wonders what would have emerged from the most perfectly controlled statistical trial of the antipyretic action of digitalis, which, in 1860, was clearly the most promising line of investigation. Steggall and Wunderlich were the victims of a false, though accepted, premise. How many such premises entangle us today? I do not mention these two men in order to mock at them, only to illustrate the fact that in a decade or two many of us will be in their position. Then it will be our turn to be on the receiving end of that retrospective smile which the work of Steggall and Wunderlich so easily invokes in us today. We need only turn to many psychiatric conditions to find ourselves in Withering's place. Thereby we may perhaps learn the useful lesson of therapeutic humility. Perhaps we can learn from him, too, how to walk blindfolded among the snares of false medical theories and yet achieve a great step forward in medical knowledge. In what terms of usefulness can one possibly describe the value to us today of the lives and achievements of the great doctors in our history like Withering? Yet there are not a few who, like him, combined achievement and modesty and gave an inspiration which we still sorely need in our day-to-day clinical practice.

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