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A Pathology Textbook of 1838: G. Freckleton, *Outlines of General Pathology*

By Han Moll

A textbook that appeared more than a few years ago loses its value as an educational means: it becomes obsolete or is already so. However, such a textbook increasingly acquires a new value, the longer ago its date of publication: it becomes a document of the medical knowledge and the medical thinking of the period in which the book was written. In a broader context it then also becomes a document of the development of medical knowledge and concepts. A textbook is of specific value as medico-historical document since it is there that one will find an overview of a large part of medicine, possible even of the whole of medicine. In articles one will find in general only observations of and opinions on one restricted subject. It will not always be possible to deduce from this the views of the author as a medical doctor and exactly this is of great importance if one wants to study the development of medical knowledge and medical thinking.

The book and its author

'Outlines of General Pathology' by G. Freckleton, published in 1838[1] is a textbook explicitly presented as such, as appears from the introduction. 'General Pathology' is defined by the author—in somewhat different terms—as general aspects of disease and diseases, to be distinguished from 'special pathology' described as 'the study of particular diseases'.

George Freckleton does not figure prominently in the development of medicine. We know from his book that he graduated as an M. D. from the University of Cambridge. In the medical bibliography prepared by A. C. P. Callisen and published in 1831[2] we find one article by Freckleton published in 1821 and dealing with a case of hydrocephalus internus, treated by punction. In the supplement to this bibliography of 1840 only the 'Outlines of Pathology' is listed. The introduction of the book makes it clear that Freckleton was involved in medical education.

Freckleton's book probably was not a great success. It is not mentioned in

an article that appears to give a complete survey of 'Books purchased by medical libraries in Australia prior to 1856'[3]. However, the book is present in the Wellcome Institute for the History of Medicine, but there is no mention of a second edition[4].

Which are the notable features of this textbook? This question can be dealt with in two ways: which are the peculiarities of the book as such? and: what strikes the present-day reader? These two questions—with their answers—are hard to be distinguished from each other. Yet this is what will be attempted in the following—but without dealing with both questions separately.

Which type of book?

It is Freckleton's purpose in 'Outlines of Pathology' to train the observational skills of the future doctor: '—to know how and when to observe—'. We also find this idea in the following somewhat longer quotation: 'My present purpose is not directed to the treatment or cure of diseases but to point out what is essential in the observation of them'. Elsewhere he writes: '—the observer of disease will fail, if he does not apply diligence and patent investigation—'. A plea for careful observation may be even more appropriate in the year 1838 than today, since the doctor of that time had hardly any or no possibilities at all to obtain information about his patients, except by careful use of his senses. In agreement with its emphasis on observation Freckeleton's book is a textbook directed towards description and recognition of symptoms: symptoms of disease and of diseases are described with only cursory attention for the relations between specific diseases and their symptoms. Differential diagnosis is in this book at most a background subject.

These characteristics of Freckleton's book may be illustrated by pointing at his detailed descriptions of types and variations of nausea, of vomiting and of coughing. The following quotation clearly illustrates the key theme of Freckleton's book: its emphasis on symptoms with little attention for differential diagnosis: 'The eyes may become very sensible, so as not to bear even a feeble light without great inconvenience or pain; and this intolerance of light may be, in some instances, so great that the patient cannot be induced to open them except in a situation from which the light is excluded, as happens in particular in inflammations of the eyes, and in inflammations

of the brain and its membranes'. The course of diseases, with possible variations, is dealt with extensively. Part of the body of knowledge of symptoms and signs, as described by Freckleton, has been lost. For example, subtleties of what may be felt at the pulse, is an area of knowledge superseded by the observations that can be obtained with newer techniques.

Thus the book does not offer descriptions of disease entities and the author states very explicitly that he did not attempt to do so. Incidentally, however, other subjects are discussed. Therefore it is possible to discuss in the following Freckleton's ideas about causes of diseases, his classification of diseases and his views on therapy.

Freckleton's medicine

Is it possible to characterize Freckleton's concept of medicine and his views on disease and health? What we encounter is a 'modern' and rationalistic view on disease, mainly directed towards diagnosis and without moral or magical overtones: 'We may consider disease to consist in some change or alteration in the structure or position of the organs, or in the exercise of one or more of the functions of these organs producing an evident effect on the accustomed health of the individual in whom they occur'. This quotation shows a purely biologically oriented approach to medicine with emphasis on localization. This orientation also emerges clearly in the following quotation: 'The living and dead body in health and disease must be his (i.e. the doctor's) constant study'. It is characteristic for Freckleton that he does not speak of: *man* in health and disease, but of: the body in health and disease.

In Freckleton's book we find two distinct points of reference for medicine. The first consists of anatomy and physiology: '—anatomy and physiology are the groundwork—'. In agreement with this view he often refers to the biology of the healthy individual. The second point of reference apparently of great importance to Freckleton is that of morbid anatomy. I have already given a quotation in which he draws attention to the dead body '—in health and disease—'. He also writes of '—post mortem observation so essential in most cases to a correct knowledge of the disease of which the patient has died—'. Elsewhere he writes that signs and symptoms of disease '—should be compared with the appearances after death—'. The greatest progress in medicine is in fact to be expected, according to Freckleton, from 'morbid anatomy'.

Interesting as an example of a patho-anatomical way of thinking is that Freckleton hypothesizes that abdominal pain could be caused by isolated contractions of one ring-shaped segment of the intestinal musculature.

Yet Freckleton was not exclusively thinking along patho-anatomical lines. This becomes evident from his careful description of what may be noticed on the face of patients. Here he emphasizes, among other things, details of what can be observed at the nosewings. Symptoms related to taste are also stressed. In both cases one encounters observations without clear patho-anatomical correlates. He also mentions that there are diseases based on disorders in organ functions lacking a morphologic substrate. Sometimes Freckleton's thinking is epidemiological in nature. He pleads for '—correct registers of disease—', although he limits this to disease within hospitals. One wonders whether this reflects a focus on hospital medicine, or a realistic assessment of the quite limited possibility of 'correct registers of disease' outside the hospital with its possibility of autopsies. Searching for Freckleton's way of arguing about disease, health and medicine, it is striking that there is nowhere any quantification. Results of counts and measurements either by himself or by others, graphs, tables, or their written equivalents, are not present in the book.

We will return to the absence of quantifications when discussing Freckleton's research techniques. Also nearly completely absent is the animal experiment as a way of elucidating disease(s). It is only about halfway the book that we find a reference to the effect on the tongue of transsection of the lingual nerve. He also refers to animal experiments on the mechanism of vomiting, experiments with intravenous injections of putrescent material and water (no doubt inspired by supposed miasmatic causes of disease) and on the ligature of lymphatic vessels. It is interesting that Freckleton thus refers to experiments that are more (patho-)physiological in nature than directed towards elucidation of disease through experimental disease models.

Freckleton mostly uses a way of arguing that can be classified as 'modern', in part because he develops theories directly from observations, making a clear distinction between the two. We do find some exceptions to this way of arguing. Freckleton mentions the theory, adhered to for a long time, that amenorrhoea may lead to blood-vomiting and other comparable loss of blood. Here he refers to a case in which a woman during her menstruation encountered a severe emotional shock; '—suppression (of the menstruation) immediately took place and she became black as a negress

which colour she retained to her death—'. This surely must be a case of a mix-up of speculation and observation, such as—at least in this form—has been banished from modern medicine.

Causes of disease

Freckleton, only one generation removed from the earliest development of bacteriology [5], distinguishes, as may be expected in a book of 1838, two large categories of diseases, each based on a specific type of cause. These categories are: contagious diseases and miasmatic diseases, in other words, diseases transmitted from one person to another one via infection, versus diseases caused by environmental factors, such as the marshy vapours supposed to cause malaria (= bad air). As to the cause of miasmatic disease, it is noteworthy that he mentions, neither agreeing nor disagreeing, the opinion of another author, that a vapour could develop from putrescent material, which vapour would mix with the air and would then cause disease. In the category of contagious disease Freckleton distinguishes diseases caused by visible contagia besides diseases caused by invisible ones. Smallpox is an example of the first category, for one may notice—he writes—that smallpox pustules can carry the disease to another person. Whooping cough and scarlet fever are put into the category of diseases with invisible contagia. Their infectious nature was clear to Freckleton and his contemporaries but they did not yet have any notion of the 'how'.

Freckleton also introduces a tripartition of contagious diseases: infection by direct person-to-person contact, infection by material that has been in close contact with diseased persons, air-borne infection. Freckleton, in his survey of causes of disease, also distinguishes predisposing causes versus exciting ones. With predisposing causes he means those factors furthering the spread of a disease, as distinct from causes of disease in a stricter sense. He mentions in fact the predisposing factors he has in mind: psychological and somatic difference between individuals and a hereditary tendency towards certain diseases are discussed. He mentions the significance for the spread of diseases of environmental factors: their importance may vary for different individuals. Included into the category are nutritional habits, working conditions, housing and clothing. The influence on certain diseases of the seasons and of age is also emphasized. Freckleton sees a far less precise relationship between specific diseases and their causes than one generally

finds today (see later). Freckleton thus defends that a disease may *become* contagious. One disease, moreover, could be caused by various factors and—vice versa—one disease-causing factor could cause various diseases, depending on individual predisposition. Cold and moisture, for instance, could thus lead to 'rheumatism' in one individual, in a second to 'attack of fever' and in a third to 'inflammation of the chest'. With regard to Freckleton's somewhat fluid concepts of disease entities, it is also illustrative that he thinks that during an epidemic of one disease other diseases may change in character. Everything Freckleton brings forward on development of disease is strongly speculative since in his time knowledge of the mechanisms of the development of disease(s) was nearly fully absent.

Classification of disease

Freckleton categorizes diseases mainly on the base of causes so that after the above paragraph about causes a few remarks on classification will suffice.

Freckleton thinks of epidemics as an independent category of disease and they would not always have to be contagious. In the categorization of disease he regards it as a problem that sometimes there are doubts as to whether one deals with separate diseases or with variations of one disease. This problem was, of course, far greater for Freckleton than for later authors, because he still lacked the possibility (realized in many cases by bacteriology) to categorize diseases by establishing causative agents.

Freckleton's identification and description of specific diseases is sometimes not quite clear to the present-day reader. Still, it is remarkable how he and his contemporaries were capable of very precise descriptions of diseases. The following quotation shows this convincingly: 'That violent and distressing disease, tetanus, may be produced by a variety of causes—but in this country it is most commonly the sequence of some external injury or wound and forms the species, named traumatic.'

The following concise and accurate description is also remarkable: '—thus rheumatism may at first be confirmed to the larger joints or even to a single joint; this becomes suddenly free from all pain, heat and redness, while uneasiness, pain and anxiety come on in the region of the heart, accompanying other symptoms indicating that this organ is now the seat of the disease'.

Methods

The techniques of medicine discussed in Freckleton's book are nearly all of a diagnostic nature. Therapy is only incidentally discussed. Diagnostic methods are based with one exception on direct sensory observation. Only one method of another nature plays an important part in the book: the use of the stethoscope. We meet auscultation as a science in development with as its main problem the interpretation in patho-biological sense of what can be heard by way of the stethoscope. The discussion of the findings at auscultation of the heart is most remarkable in this respect. It appears that these findings, different from what is the case with the relationship between auscultation of the lungs and its patho-anatomical substrate, are not yet linked to what is known of cardiac abnormalities; in other words, the interpretation of the auscultatory findings at the heart is incorrect, from the perspective of our present knowledge. No doubt the then still very limited knowledge of cardiac physiology is involved here. The normal functional cycle of the heart is described by Freckleton as diastole, ventricular contraction, atrial contraction, diastole. Yet we do find in Freckleton's book a highly developed insight into the relationship between congenital heart disease and the occurence of cyanosis.

The thermometer, the relatively simple instrument for measuring body temperature, does not figure with Freckleton as a diagnostic or prognostic tool. But Freckleton does mention some general data on body temperature. Possibly, he regarded the thermometer as an instrument for research, but not for care of individual patients. Only once, and then implicitly, the microscope is mentioned and then not as a diagnostic tool: Freckleton discusses data of another author on the constituents of pus.

Looking at Freckleton's methods from a somewhat broader point of view, it strikes us that he does not use any of the quantifications which are so characteristic of modern medicine, an issue already mentioned in another context. No doubt this is related to the absence of diagnostic aids yielding numerical data.

Therapy

Therapy is a subject which Freckleton, as mentioned before, explicitly excludes from his book. Still, there are a number of interesting remarks on

therapy. One of these is a general one, for Freckleton's time indeed very appropriate: 'For few diseases indeed we possess specific remedies, but the operation of by far the greatest number is relative.' Many of Freckleton's statements on therapy are rather vague. Thus he sometimes speaks of 'appropriate remedies' without any further specification. We do find, however, critical remarks on the traditional therapies of blood-letting and purging. Some passages suggest that Freckleton's thinking was less rational in the field of therapy than in that of diagnosis. He thus describes a girl who had received a blow on the head and had developed symptoms of compression, which pointed to the need for trepanation. However, this operation was not performed, for recovery ensued after 'some smart purging and other means'. We should like to know how this purging was carried out, what the other means were and how the course of recovery was after this therapy, but these questions remain unanswered.

Which concept of man?

A general concept of man can be found in any general consideration of health, disease and medicine, even when the person adhering to such a concept is not consciously aware of this. This brings us to the last question in our analysis of Freckleton's book: what was his concept of man and his nature?

Since Freckleton strictly followed his objective of writing a medical textbook, his text offers no opportunity for a detailed analysis of his concept of man. We may only say that it is a purely biological concept. A very revealing illustration: We read that not the human being but his brain perceives: 'The different parts of the body possess *sensibility* (italics by Freckleton) or the power of receiving certain impressions made upon them, which being conveyed to the brain are perceived by it.'

Freckleton's concept of man is surely largely determined by his medical interests. In the paragraph on pain he keeps himself very clearly aloof from any wider concept of the phenomenon of pain as a human experience. This makes no sense, he says, approvingly quoting the opinion of another author, for everybody knows from experience what pain is. He also says, with a strictly medical orientation: 'It (pain) serves to indicate it (meant is "disease").'

Freckleton's world and Freckleton's medical world

Freckleton's world is that of rapid industrialization and of a migration towards the rapidly expanding cities. It is characteristic for his world that from 1821 onwards the connection between Dover and Calais was served by steam vessels and that after the start of railway construction the United Kingdom in 1830 had some 2000 miles of railway tracks. The hygienic conditions in the cities, presumably as a result of rapid growth, were worse than some decades before: waterworks, sewerage and efficient waste removal only started developing at the time of publication of Freckleton's book. The rapid growth of the cities was not balanced by a rapid growth of sanitary facilities and it does not surprise that the decline in mortality begun in the 18th century came to a halt in the period 1810–1855. The first Public Health Act came into being only in 1848, making hygienic provisions obligatory[6]. At the time of publication of Freckleton's book medicine knew as diagnostic instrument only the stethoscope introduced by Laennec in 1819[7]. Chemical examination of urine was developed from 1844 onwards, starting with the determination of protein; for counting blood cells the comparable year is 1852, for determining the haemoglobin content of blood 1878[8]. Anaesthesia was developed from 1844, making use of nitrous oxide, antisepsis and asepsis from 1870–1880[9]. From 1870 on measuring body temperature at the sickbed came into use[10]. The most dramatic development, that of the recognition of microbes as causes of disease, started about 1875[11]. Presumably the discoveries of microbial causes of diseases have added to the concept that a specific disease also has a specific cause responsible for the disease and that therefore there should be one specific therapy for that disease[12]. We have already seen that Freckleton held a different opinion. Freckleton's rather indefinite—at least to our eyes indefinite—statements on therapy (see 'therapy') may be explained by the fact that he did not yet think by way of the concept of 'one disease—one therapy'. Interestingly, the question arises whether in the last decades we have not taken a reverse course for a number of diseases: a course away from the concept that only one cause and one therapy will fit one disease. This may hold for coronary heart disease and the discussion on the so-called risk factors presumably determining the development of this disease.

Some more remarks on Freckleton's medicine. Anatomical pathology was not only to Freckleton but also to his contemporaries the most essential supportive science for medicine[13]. Counts and measurements, e. g. counting

the frequency with which a specific symptom occurs with a specific disease, was not common in Freckleton's time. It was propagated by the Frenchman P. C. A. Louis about 1830[14] as a new methodology. The systematic search for new drugs was unknown of in Freckleton's time. It closely followed the development of chemistry and the chemical industry about 1880. At the time of publication of Freckleton's book there was no such thing as a comprehensive medical profession. There were a number of professions oriented towards different branches of medicine as we know it. Accordingly, there were a number of schools giving authority to practice in various branches of medicine. One qualification for the whole of medicine was achieved only with the Medical Act of 1859[15]. One can get an impression of the duration of the training in Freckleton's time from the fact that about 1810 it was possible to get a medical licence in less than two years, although there were also longer training programmes[16].

Final remarks

There are two aspects in Freckleton's book which can be considered very remarkable. The first one is his rather unusual choice to write a textbook with symptoms as the central theme and thus not oriented towards description of distinct diseases—the most common type of textbook—nor oriented towards differential diagnosis, a less common but not extremely rare type of textbook. The second very remarkable aspect of Freckleton's book is the presence of a concept of medicine in which medicine is seen as applied biology and the sick person as a biological object with a defect in structure and/or function that should be traced and corrected. These concepts of medicine may be regarded as the dominant theoretical background of medicine[17] in the 19th century and up till 1950—as arbitrary date—although strictly humane impetuses surely will have been at the base of the actual behaviour of individual doctors towards individual patients. The roughly speaking modern concept of medicine described above, is the more remarkable in Freckleton's book since all that was then known and could be done in medicine is so far removed from the present situation.

One may relate Freckleton's thinking to the time of publication of his book, the start of the industrial revolution. One may relate Freckleton's focus on symptoms to a societal development, more than before directed by social reality, less by traditions and other social values; one may also see a

relationship between the concept of man as a biological machine, clearly present in Freckleton's book, and the rapidly growing impact of the machine in society. The neglect in Freckleton's book of man as an individual may be related to the impersonal relations within the rapidly growing cities and within the expanding industry; developments leading to a decline of recognition of individuality, pertaining to large segments of the population, in contrast to the traditional situation in agriculture, home industry and small communities.

Notes

1 George Freckleton, *Outlines of General Pathology* (London 1838).
2 A. C. P. Calissen, *Medizinisches Schriftsteller-Lexicon der jetzt lebenden Ärzte* (Copenhagen 1831), Nachtrag (Copenhagen 1840).
3 A. Torell and B. Ganderia, 'Books purchased by medical libraries in Australia prior to 1856', *Medical History*, 9 (1965) 61–71.
4 *A catalogue of printed books in the Wellcome historical medical library, books printed from 1641–1850, F–L* (London 1976).
5 E. H. Ackerknecht, *Geschichte der Medizin* (Stuttgart 1979), 153 ff.
6 Data from G. M. Trevelyan, *English Social History* (London 1974).
7 Ackerknecht, see note 5, 130 ff.
8 E. Ashworth Underwood, 'The history of the quantitative approach in medicine', *British Medical Bulletin*, 7 (1951) 265–274.
9 Ackerknecht, see note 5, 153 ff.
10 See note 8.
11 Ackerknecht, see note 5, 153 ff.
12 K. Codell Carter, 'Nineteenth-century treatments for rabies as reported in the Lancet', *Medical History*, 26 (1982) 67–78, spec. 77.
13 I. A. Porter, 'The nineteenth-century physician and cardiologist Thomas Bevill Peacock (1812–1882)', *Medical History*, 6 (1962) 240–254.
14 See note 8.
15 J. B. Brotherston, 'Evolution of medical practice' in G. McLachlan and others ed., *Medical History and Medical Care* (London etc. 1971) 85–101.
16 L. Woodford, 'A medical student's career in the early nineteenth century', *Medical History*, 14 (1970) 90–95; A. C. Chitnis, 'Medical Education in Edinburgh, 1790–1826, and some Victorian social consequences, *Medical History*, 17 (1973) 173–185.
17 Ackerknecht, see note 5, 127 ff.; see for a description of opposition against a strictly scientific medicine e. g. P. J. Thung, *Wat is er gaande in de geneeskunde?* (What is going on in medicine?) (Leiden 1966) and G. L. Engel, 'The need for a new medical model: a challenge for biomedicine, *Science*, 196 (1977) 129–136.

Summary

George Freckleton's textbook 'Outlines of general pathology', published in 1838, is analysed as a document of medical thinking in the period in which the book was written. It focusses not on specific diseases or diagnosis, but on symptoms. In Freckleton's medicine man is a biological machine. His point of view is therefore that of the dominant basic concept of medicine of the nineteenth and present century. Anatomy, physiology and (a morphological) pathology are the main disciplines serving as point of references for Freckleton's medicine. The only technical aid of Freckleton's medicine is the stethoscope. Even measuring body temperature was apparently not a part of his body of methods of observation. The few comments on therapy indicate a much less rational approach in this domain than in that of diagnosis.

The suggestion is made that the approach to medicine in this book is related to the social conditions of the early industrial revolution, which developed at the time of publication of 'Outlines of general pathology'.

Zusammenfassung

Das 1838 in England erschienene Lehrbuch «Outlines of general pathology» von George Freckleton wird analysiert als Beispiel für den Stand des medizinischen Wissens jener Zeit. Die Diagnostik basiert auf Anatomie, Physiologie und (morphologischer) Pathologie. Das einzige Hilfsmittel der Untersuchungstechnik ist das Stethoskop, aber noch nicht die Temperaturmessung.

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