

be placed under strict regulation. In the period of Islam, medicine became much more extensive as a profession reaching out to a much greater percentage of the people than ever before. The profession was highly specialized just as it had been in earlier periods of Mesopotamia, Egypt, and Greece. In addition, many people in Islam were engaged in the preparation of different kinds of drugs. It is evident from the texts that these were the ones to be watched most carefully.

The *hisba* also carefully regulated the physicians. A list of topics which were to be studied by the physician was given. His routine with the patient was also noted. Surgeons were similarly circumscribed. Penalties for physicians and surgeons were prescribed in case of malpractice. Those who performed circumcision were subject to liability if the operation was performed badly so that the patient was injured or died.

One of the primary aims of the *muhtasib* was the prevention of illegal acts. For this reason, the practitioner-to-be was well examined in medicine. The surgeon was also examined on the basis of *Kata Genos* of Galen well known in Arabic as *Kitāb tadbīr al-adwiyah* which had been translated by Ḥubaish, nephew of Ḥunain ibn Ishāq. The oath of Hippocrates, according to the *hisba*, was administered to all physicians. In effect, the *muhtasib* operated a licensing office for the various grades of medical men.

All in all, the description of the work of the *muhtasib* in regard to medicine gives the general picture of very common events in its practice. For example, there was evidently much adulteration of the materia medica. There must have been numerous charlatans in the various branches of medicine. Although the *muhtasib* was responsible for overseeing the hospital, little is known about it.<sup>30</sup>

## News, Notes and Queries

### A SERIOUS SENTENCE PASSED AGAINST THE DISCOVERER OF THE LEPROSY BACILLUS (GERHARD ARMAUER HANSEN), IN 1880

IN 1873 after he had found the rod-shaped bodies in leprous nodules, G. A. Hansen was convinced that he had discovered the causative agent of the disease, but he was still of the opinion that this was incompletely proved. He therefore tried different approaches to find new and stronger proof. After his correspondence with Robert Koch in 1879, he was able to stain the bacillus so well that it could be demonstrated

<sup>30</sup> It was necessary for the *muhtasib* to investigate the effectiveness of the hospitals. He inspected their facilities. Cf. R. B. Serjeant, 'A Zaidī Manual of Ḥisbah of the Third Century (H)', *Riv. Stud. Orientali*, 28, 1-34, fols. 292a-292b. This contains the edited text of British Museum MS. Or. 3804 by al-Nāsir li-'l-Ḥāq al-Ḥasan b. 'Alī al-uṭrūsh (A.D. 917). The title is *Kitāb al-iḥtisāb*. Cf. also Khalil Yohyā Nāmi, *Taqrīr Muqaddam*, on the work of al-Bi 'that al-Misriyah li-Taṣwīr al-Makḥṭūṭāt al-'Arabīyah fi Bilād al-Yaman, Cairo, 1952.

### *News, Notes and Queries*

easily. He tried to cultivate the bacillus on artificial media and to transfer it to animals; all in vain. After having inoculated many rabbits without result, he started to transfer leprous material from man to man. This was not a new idea, as leprous material had been inoculated into human beings several times previously in the Bergen leprosy hospitals.

In 1844 D. C. Danielssen inoculated material from a leprous nodule into himself and later the same year, he inoculated two caretakers and a nurse in St. Jorgen's Hospital in Bergen; all inoculations gave negative results.

In the autumn of 1846 a small leprous nodule was placed under the skin of the upper part of Danielssen's left arm and the incision was sutured. The sutures cut through and eight days after the inoculation, suppuration occurred, resulting in an ulcer which healed after a few weeks.

In 1856 Danielssen, his medical assistant, the sister, two nurses and a male helper at the Lungegården Leprosy Hospital in Bergen were all inoculated with nodule tissue, blood and a pleural exudate. Reactions in the form of slight lymphangitis occurred only after the inoculation of the pleural exudate. In 1857 several syphilitic and favus patients were inoculated with nodule tissue, and in 1858 Danielssen and a nurse were reinoculated; all gave negative results.

The inoculations were mostly carried out on the upper part and sometimes the lower part of the arm, by using a lancet on which nodule material was placed. The inoculations reached the deeper layer of the skin. The reactions consisted of slight transient rubor and oedema in the inoculation area.

Hansen suggests that it must be regarded as good luck that none of the inoculated subjects got sepsis or pyaemia, as firstly the inoculations were carried out in the pre-antiseptic age, and secondly pleural exudate was on occasion used, in which leprosy bacilli never exist, while other microbes may.

In addition to the nodular and the maculo-anaesthetic types of leprosy, mixed cases may also be seen. It was Hansen's intention not only to transfer leprous material from man to man, but also to see if it was possible to make a maculo-anaesthetic case nodular. In the first case, a recently extirpated leprous nodule was inoculated under the skin of the lower part of the arm in a maculo-anaesthetic patient; no reaction resulted. The second case is more interesting as court proceedings were initiated in connection with it and Hansen was found guilty.

May 31st, 1880  
The City of Bergen Law Courts  
Case No. 99/1880:  
Legal Proceedings  
against  
Gerhard Henrik Armauer Hansen

The following sentence was pronounced:

By order in council of 17 April 1880, Gerhard Henrik Armauer Hansen, resident physician at 'Pleiestiftelsen for Spedalske Nr. 1' (the leper hospital in Bergen), and medical officer of health for leprosy, was prosecuted for having, on 3 November 1879, used a cataract knife which just previously had been used to cut a nodule from a patient suffering from nodular leprosy, on the eye of another female patient in the hospital.

The defendant, who was thirty-eight years of age, was in 1868 appointed resident physician at 'Pleiestiftelsen for Spedalske Nr. 1' by the Civil Government Office. By order in council of 11 August 1875, from 15th of the same month, with six months'

notice on both sides, he was also appointed medical officer of health for leprosy in Norway. By the same order the medical officer for leprosy was instructed to serve as resident physician at 'Pleiestiftelsen for Spedalske Nr. 1'. The latter order was, however, repealed by order in council on the same day as the indictment was made.

The facts are essentially as follows:

On 3 November 1879, the No. 1 deponent, a female patient suffering from the anaesthetic type of leprosy, who had been in the 'Pleiestiftelsen for Spedalske Nr. 1' for seventeen years, was asked during the round to accompany the doctor to the office as he wanted to speak to her. Two other doctors were working there. Although she did not know the reason she had been asked to attend, she stayed anxiously beside the door and started to weep. The doctor asked her to come to the table. She then saw that he had a sharp-cutting instrument in his hand which he brought up to her eye. The deponent is of the opinion that he did not at that time touch the eye, which she safeguarded by holding up her left arm, and at the same time pressed him back with the right one. The defendant states that he made an incision in the conjunctiva of her left eye with the instrument, a cataract knife, which a short time before had been used to cut into a nodule from a case of nodular leprosy. Although it was his intention, he did not succeed in inoculating the material into the eye, as she did not keep the eye still. One of the other doctors in the room then calmed down the deponent and placed her in a chair. It was then possible to carry out the operation, placing the material from the cataract knife under the conjunctiva of the eye. The deponent is of the opinion that she was inoculated twice, and after the first incision asked the defendant not to touch the other eye, as she was afraid she would lose her eyesight, but she was told that she would not.

The defendant, as well as the other doctor, regarded the two incisions as a misrecollection on the part of the deponent who said that she had her hands free during the operation. She pointed out that both incisions were very painful. On the other hand, the defendant suggested that an anaesthetic eye should be senseless, but admitted that he had not examined for this in advance. As witnesses the two other physicians declared it to be impossible without preceding examination to state with certainty whether or not the mucous membrane of the eye is anaesthetic. One of these physicians, an ophthalmologist, was of the opinion that the operation is so harmless that it would not have caused any considerable amount of pain even in a healthy eye, but added that the pain might be aggravated in such a nervous and hysterical subject as the deponent, due to her imagination. He, however, had examined the eye, and found it rather insensitive, although it was not quite insusceptible to touch.

The deponent stated that she had pain in the eye for seven weeks and that it was so strong that it disturbed her sleep. She had not been able to use the eye for reading since.

The defendant stated that instead of the intended growth of a nodule in the eye, the result was an inflammation which could not have caused pains of the severity the deponent had described. In similar cases of inflammation of the eye, he had never heard of aching in the eye and the temples. Such unconscious exaggeration on the part of the deponent may have been a consequence of what the ophthalmologist called her nervous and hysterical condition. The same ophthalmologist had also declared that her impaired vision was caused by another eye disease which had nothing to do with the incision, but might probably have disturbed her sleep. The defendant, however, admitted that he was not justified in carrying out the operation as he had neither obtained her permission in advance, nor told her of his aim in doing it. He had omitted this as he took for granted that the deponent would not regard the experiment

from his point of view, and if something happened, he was sure he could get the affection under control.

The defendant then explained the motives for his unjustified operation: Some years earlier he had tried to prove his theory of the infectiousness of leprosy by carrying out experiments trying to transfer the disease to rabbits. As these experiments did not give positive results, he was forced in his report to use his other arguments only and to state that in his search for the causative agent of leprosy, he had seen rod-shaped bodies like bacteria. As a result of a publication by a German physician, Dr. Koch, reporting interesting and convincing examinations in pyaemia, septicaemia and anthrax, and demonstrating their dependence on bacteria, the defendant learnt a new method for staining microbes. Using this new method, he succeeded, in the autumn 1879, in demonstrating the bacilli in the leprosy nodules much more easily.

The presence of bacilli is not sufficient to prove the infectiousness of the disease; it is also necessary to transfer the bacilli experimentally to animals and human beings. After corresponding with Dr. Koch, and because the unsuccessful experiments on rabbits led him to presume that the leprosy bacillus could only live in man, he started experiments attempting to transfer the bacilli to human subjects. He was of the opinion that he was justified in this, even if the subject should have some pain, because he had chosen a subject who had suffered from leprosy for many years, and therefore would not be exposed to a new disease. He was quite sure that there was no risk of loss of vision, even if the inoculation should have resulted in a nodule. He himself had several times extirpated nodules from eyes without any trouble, and had succeeded in saving the eye-sight. With regard to the question of whether a nodule developing in an eye was able to spread further into the body of the patient, the expert declared that on analogy to all experience from other diseases, it could not be presumed that patients suffering from the anaesthetic type of leprosy would *in casu* become inflicted with the nodular type of disease. The defendant, on the other hand, was of the opinion that at the present stage of scientific knowledge it was impossible to know what would happen, but he was convinced that he could counteract the spread in the body by extirpation of a contingent nodule at the start. The great scientific and national importance of finding the answer to the question had therefore forced him to act as he did.

This, in the main, is the evidence used in the case.

After some arguments and interpretation of the law, the sentence of the court was:

The defendant, Gerhard Henrik Armauer Hansen, will (and here are mentioned the sections of the law used) be deprived of his position as resident physician at 'Pleiestiftelsen for Spedalske Nr. 1', and is also to furnish the expenses connected with the case.

This sentence was discussed animatedly and reprobated in most Norwegian scientific circles. It was announced in the court that the case had been submitted to the Director General of the Norwegian Health Directorate, in advance. In a declaration he stated that the experiment carried out by G. Armauer Hansen appeared to him to be no more radical than must be regarded as justifiable, if the patient had given him permission to carry it out, after having been told what might happen. Although the patient had not given her distinct permission for the operation, she had on the other hand not distinctly opposed it. The Director General had therefore decided that there was not sufficient reason to give Hansen other than a serious reprimand.

The Director General was of the opinion that the experiment had been carried out to contribute to a question with the most important consequences for science, the

nation and the patients and that it had been performed by a man who had already made considerable contributions to the question mentioned.

Although Gerhard Armauer Hansen was deprived of his position as resident physician at the Bergen Leprosy Hospital, he continued in his appointment as medical officer of health for leprosy in Norway until his death in 1912.

A photostat copy of the sentence is filed in the Armauer Hansen memorial room in Bergen which was inaugurated on 12 February 1962.

T. M. VOGELSAANG

## ROBERT BRIDGES:

### 1. HIS FRIENDSHIP WITH GERARD MANLEY HOPKINS

### 2. HIS *CARMEN ELEGIACUM DE NOSOCOMIO STI BARTHOLOMAEI LONDINIENSI*

At the same time that Thornton<sup>1</sup> and I<sup>2</sup> were writing about Robert Bridges, R. E. Hadden<sup>3</sup> also was composing a thoughtful analysis of *The Testament of Beauty*. Before I discovered his article on arthritis,<sup>4</sup> I had known little about Bridges except that he had been a friend of the Jesuit poet, Gerard Manley Hopkins (1844–89). In the diary of Hopkins we read that on 25 August 1868, Bridges visited him and was bitten by a dog.<sup>5</sup> The friends corresponded regularly until the death of Hopkins from enteric fever at University College, Dublin, in 1889. Immediately the Vice-President of the College sent most of the Hopkins papers to Bridges.<sup>6</sup>

Twenty-nine years later, Bridges published the poems in which Hopkins had experimented with new rhythms and his own characteristic neologisms.<sup>7</sup> Many who knew Hopkins' writings well were surprised to find at his centenary in 1944 that the writer of these fresh and new poems had really been a poet of the last century. Bridges himself wrote,<sup>8</sup> that the sonnet (To R. B.)<sup>9</sup> dedicated to him was the last poem Hopkins ever wrote.

In his letters, as in most of Bridges' prose, there is very little about medicine or science and I am glad to read Hadden's deeper analysis of the *Testament of Beauty*.<sup>3</sup> And there was little of medicine in his daily speech, though he used to joke about a patient who fled from St. Bartholomew's when he saw 'ter die' written on his prescription.<sup>10</sup> He disapproved of the use of Latin in British anatomy schools; in 1922 he wrote a preface entitled 'The Language of Anatomy' to a collection of articles written by artists.<sup>11</sup>

The Latin *Ode to St. Bartholomew's* is mentioned by most of his biographers, but I have never seen any quotations from it in the works of Bridges. There is no copy in Melbourne, but during a visit to London last year I discovered a copy in the British Museum, where the slender volume is classed as extra rare.

The first hundred or so of the 588 lines are devoted to the praise of the monk Rahere, and the vow he made at Rome, and his vision of St. Bartholomew's as it stood in 1877. Then the *historia fundationis nosocomii* is related at length, with short sketches of the *illustrissimi viri* who have helped to make 'Barts' famous. A few lines each are given to Harvey, Pott, Hunter, Pitcairn, Brodie, Abernethy—with a reference to the Abernethian Society—and Lawrence. Radcliffe gets special mention for his benefactions, then teachers of the more recent past—Latham, Stanley, Kirkes, Baly, Watson and Owen.

Then follows mention of the present staff—*de medicis et chirurgis qui in eodem loco*