

in 24 to 48 hours. It is characterised by a circumscribed area of redness which persists for seven to ten days, and on fading shows superficial scaling and a persistent brownish pigmentation. An outbreak of diphtheria occurred at an industrial school near New York in April and May, 1914. Six mild cases were found and in June six more. Cultures taken from all the well children in the first week of May showed that 90 out of 260 were carriers of diphtheria germs. The Schick test was employed and it was found that half of all the children were immune; most of the carriers, too, were immune. All the cases not immune were given 1000 units of antitoxin, and this was repeated in 30 days as it was found that 75 per cent. of these cases had again become positive, a proof that the immunisation does not last for very long. The result of the measures adopted was a progressive diminution in the number of carriers, and by the first week in August only three or four remained.

LEPER HOUSES AND MEDIAEVAL HOSPITALS.¹

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HOSPITAL.

A HOSPITAL is not necessarily for the reception of the sick. Even now we have the examples of Christ's Hospital, Greenwich Hospital, Chelsea Hospital, the Foundling Hospital, and others to remind us that a hospital, or as our ancestors called it, an *hospitall*, is a place of entertainment, a place where hospitality is dispensed. The word is sometimes used in old documents as equivalent to an inn, and indeed the word *hotel* is but a modified form of hospital, and the hostler or ostler is an *hospitaller*. This introduction is necessary because in treating of early and mediæval hospitals it is impossible to restrict our inquiries exclusively to hospitals for the sick, for in early times there were few or none that were devoted exclusively to this purpose.

There is no record of any hospital in Pagan Rome, but no doubt some existed, for with the establishment of Christianity by Constantine many were founded, both at Constantinople and at Rome, and were on so great a scale that it is certain they were not the first. Heraclitus said that all things flow. If he had said that all things grow, he would have uttered a more fundamental truth. Nothing springs suddenly into existence, but all great things have small beginnings.

The first hospital of which we have any record was founded for lepers in the reign of Constantine, himself a leper, by one Zodicus, a wealthy noble of his court, and the example was soon followed by others—Eubolus, Statius, Polybius, Eugenius, and Olympia, all in the fourth century. The Hospital or Xenon of Zodicus had a varied history. In the reign of Constantius there was a famine in Constantinople, and the populace accused Zodicus of bringing the wrath of heaven upon the city by preserving so many people whom God had accursed by afflicting them with leprosy. Zodicus was thrown into prison, and the Emperor, hearing that he had a magnificent collection of jewels, ordered him to produce them, Zodicus agreed, and took the Imperial bandit to his leper house, where all

the lepers, headed by the daughter of Constantius himself, appeared before him, each bearing a lighted candle. "Behold!" cried Zodicus, "my precious jewels!" Constantius was not impressed. On the contrary, he was so furious at the trick that he ordered Zodicus to be torn to pieces by wild mules, and the lepers, including his own daughter, to be thrown into the Bosphorus. However, he seems to have repented soon after, for in the following year he founded another leper house on the same spot. This was burnt in the riot provoked by the persecution of St. John Chrysostom by the Empress Eudoxia in 404. Rebuilt by Theodosius the Younger in 415, it was again burnt in the riot of Nica in 532. Justinian I. rebuilt it on a much larger scale in 540, his successor enlarged it in 577, and in 1116 the Emperor Alexius Comnenus increased it so that it would accommodate, it was said, 10,000 beds. His daughter, Anna Comnena, the celebrated blue stocking, gives a long description of it in the fifteenth book of her "Alexiad." "It is," she said, "a veritable city, where the unfortunate are nursed and cared for—wine flows in rivers; the blind are led by those who see, the old by the young, the legless by those who have legs, and those without arms by those who possess them; orphan children are suckled by mothers not their own; the sick are served by those who are well."

To return to the fourth century, it is said that under Theodosius the Great the number of hospitals was so great that one was attached to almost every church, and towards the end of this century St. Basil devoted his life and his fortune to the maintenance of a great leper hospital at his native town of Cæsarea. It was primarily a leper house, but included numerous annexes for travellers, monks, workmen, and the sick. St. Basil himself nursed the lepers and instructed the nurses in dressing their sores. When he died, St. Gregory Nazianzen preached a memorable funeral sermon exalting the work of Basil above the seven wonders of the world, and pleading with great eloquence the cause of the leper. It is notable that Newman in his life of Basil does not mention the leper house, and in his life of St. Gregory Nazianzen does not give the funeral oration. All that interested Newman was the mental struggles of the saints, and the squabble between them.

Justinian established *xenodochia* or *nosocomia* (hospitals), *ptochia* (poor-houses), *orphanotopia* (orphanages), *brephotopia* (foundling hospitals), and *gerontocomia* (almshouses), so that in his time charity was profuse and organised. His wife, the infamous Empress Theodora, founded a penitentiary for fallen women, and in her journey to the baths of Pythea she distributed liberal alms to the churches, monasteries, and hospitals of Bythynia.

In Moorish Spain and in Syria general hospitals for the sick were maintained by the Caliphs, and great schools of medicine grew up around them, giving to the world physicians whose names are imperishable—Mesuë the elder and the younger, Rhazes, Avicenna, Haly-Abbas, Avenzoar, Averroes, Abdulcasis, and Maimonides, a succession of physicians who cannot be paralleled in Christendom from the ninth to the twelfth century.

In this country only two hospitals are known to have been founded before the Conquest, neither of them for lepers. The first leper house in France was founded at St. Ouen in 460 and the first in England by Lanfranc in 1087. Many leper houses were founded in this country in the thirteenth century, but very few after that time, and in France

¹ Abstract of the FitzPatrick lecture No. I. The full text of the two lectures will appear in the Glasgow Medical Journal.

none were founded after the fourteenth century, though further east Solyman the Magnificent founded a great leper house at Scutari in 1540, at a time when the European leper houses were being closed for lack of patients.

Leper houses were hospitals in the modern sense in so far that they were institutions for the reception of the sick, and in some leper houses there were nurses, but the leper houses of Christendom were rather combinations of the prison, the monastery, and the almshouse than hospitals in the modern sense. The chief object of the leper house was to serve as a prison, or if we prefer the term, a compulsory isolation hospital, for the seclusion of the lepers from the general population. This seems to have been the rule from very early times. Herodotus says that in his time in Persia if anyone is afflicted with leprosy he is driven from the town and forbidden to associate with other Persians; and Pausanias in 479 B.C. mentions a town of Elida named Leproon because of the lepers accumulated there, but neither Aretæus, who gave a minute and accurate description of leprosy in the first century A.D., nor Galen, who gave a detailed description in the second century, nor Oribasius, in the fourth century, say that the disease is contagious or speak of the segregation of lepers. The first mention of the compulsory isolation of lepers in Christendom is by Ætius in the sixth century, and Paulus Ægineta in the seventh speaks of it as an established practice in his time.

It is doubtful whether the seclusion of lepers from the general population was at first due to any apprehension of the contagiousness of the disease. It seems more likely that in early times the leper was separated because he was looked upon as accursed. The disease was regarded as a mark of the wrath of God, and the leper was driven from among men lest they also should share in the Divine displeasure. However this may be, it is certain that at a very early time the conviction of the contagiousness of the disease was firmly fixed in the general mind. A regulation of the great leper house of St. Julian at St. Albans provides that "no Brother is to go into the Bakehouse or Brewhouse but he that has charge of them, and he not to touch anything, because Persons under such a Distemper are not to handle what is for the common use of Men." The danger of contagion is explicitly stated in a writ of Edward IV., which opens with these words: "Whereas we have heard that Johanna Nightingale is a leper and is commonly holding intercourse with the people of the aforesaid county, and mingles with them both in public and private places, and refuses to retire to a solitary place, to the grievous injury, and on account of the contagion of the aforesaid disease, the manifest peril of the aforesaid inhabitants," &c.

At Arles, Metz, Marseilles, Berwick-on-Tweed, London, and other places, inspections were made from time to time for the discovery of lepers, and regulations were made to prevent them from entering the towns. In Scotland all men were forbidden to harbour lepers, and lepers were forbidden to enter any town except on Sundays, Wednesdays, and Fridays, from 10 to 2, and not then if there was a market on those days; and in 1349 the Dauphin, subsequently Louis XI., issued a commission to the whole of France to discover lepers and forbid them to mingle with others. If lepers refused to go into retreat they were very summarily dealt with. At Metz and some other places in France they were burnt alive.

No doubt many people suffering from chronic skin diseases of various kinds were sent to leper houses, and both Bernardus de Gordonio and John of Gaddesden complain that lepers are very injudiciously adjudged, but still the recorded regulations show that in many places extreme care was exercised that no one should be considered leprous who was not indeed a leper. In Lorraine, in a doubtful case, a suspect was subjected to 22 successive investigations, and if still doubtful was sent to a leper house, but was there visited by physicians, and not until he was declared leprous by them was he *cum multis verbis bonis et consolatoriis sequestrandum a populo*. In other places the suspect was kept under observation for a year. All the ancient and mediæval authors give a very clear description of leprosy, distinguishing the four different kinds—elephantine, alopecic, ophidian, and leontine—and give an immense number of diagnostic signs, up to 75 in some authors. Bartholemy Glanville's description is as picturesque as any. As translated out of Latin by John Trevisa he describes lepers as having "redde Whelkes and Pymples in the face (cf. Bardolph's nose, covered with Knobs and Whelks and Bubukles and Flames of Fire) out of whome oftenne runne Blood and Matter; in such the nose swollen and ben grete, the vertue of Smellynge fayleth and the Brethe stynkyth ryght fowle," &c.

In Rymer's "Fœdera" appears a *Medicorum Regis supra morbo leprae certificatio* which is addressed "To the most excellent and serene Prince and Lord in Christ, Edward, by the Grace of God King of England and France and Lord of Ireland." It is dated 1468, and refers therefore to Edward IV., and sets forth that in obedience to a writ addressed to the Sheriff of Essex, "We, William Hattecliffe, Roger Marshall and Dominus de Serego, your physicians, and sworn to watch over the health of your person, send due Reverence with Humility and Worship." The three physicians then recite the writ, and declare how they have examined the suspect for the 25 signs of general leprosy and for upwards of 50 of the distinctive signs of the four varieties, and find that she is utterly free and untainted. It appears that in this instance, at any rate, more care was exercised in the reign of Edward IV. in the examination of a leper than is now required in the examination of a lunatic.

When the verdict was finally given that the suspect was indeed leprous he was subjected to a gruesome ceremony adapted from that of taking the veil. He was carried to the church on a bier and covered with a pall, the mass for the dead was said over him, he was then taken to the churchyard and placed beside an open grave, where the priest scattered dust three times upon his head, saying, "Die to the world: be born again to God." Then after many admonitions and further prayers he was conducted to his solitary cabin, or to the leper house, and became civilly dead. His will was administered, his wife was free to marry again, he was incapable of holding property, he could not even be a guardian in socage, whatever that may be, and thenceforth he lived an outcast, subsisting on the alms of the charitable. If, however, he was fortunate enough to gain entrance to one of the wealthy leper houses his lot was a fairly comfortable one as far as material comforts go, but he had to pay for this better treatment by a very severe course of religious exercises.

It is evident that in respect of secluding him from the healthy population, it would avail little to

send a leper to a leper house unless measures were taken to keep him there, and we find accordingly that punishment of greater or less severity awaited the leper who made his escape. At St. Julian's Hospital, where lepers lived in considerable luxury, it was considered sufficient punishment to expel them from the house if they lay out all night. The same offence was visited at St. Magdalen's Hospital, Exeter, by the stocks and bread and water for one day. At Greenside in Scotland the same offence was a hanging matter, and lest any inmate of the leper house should forget the penalty and err by inadvertence, the authorities thoughtfully erected a gibbet before the gate to remind him. At other places the offence was regarded still more seriously. At Schenalle in 1321 two lepers who escaped from the leper house were first flogged and then burnt alive.

Leprosy must have been extremely prevalent in the Middle Ages. Mezeray says that in the twelfth century there was neither town nor burgh in France that was not obliged to provide a hospital for lepers. Muratori says that in Italy there was scarcely a city that had not a place set apart for lepers. Our Anglo-Saxon ancestors called it *seo mycle ail*—the great disease. In 1226 it was reckoned that there were 2000 leper houses in France, and this is probably correct, for there were 43 in Paris alone, 219 in Normandy, and 59 in Lorraine. In England it seems to have been less prevalent, for in the twelfth century there were but six in London, five at Lyme Regis, and 20 in all Norfolk, and we do not know of more than about 220 in England and Scotland. Other signs of its prevalence are found in the number of distinguished persons, reigning sovereigns and others, who are known to have suffered from it, and in the provision of separate leper houses for separate classes. Thus in Dauphiné there was one leper house for the nobles, another for the commons, and a third for the ladies of the court. The hospital at Walsingham was for lepers who were sick and of good family, and that of St. Laurence of Canterbury was for the clergy.

Few leper houses were founded in England after the thirteenth century, and in the fourteenth century the English leper houses were being closed for lack of patients, and their funds diverted to other uses. A few isolated cases are recorded in the sixteenth century, in which the disease altogether disappeared in this country. In France it was reported in 1696 that leprosy had altogether disappeared, and though it lingered in the Hebrides till the last century and is still known in Norway and Constantinople, yet in the great area of Europe it has entirely disappeared.

Why leprosy should thus have disappeared from Europe is a curious matter for speculation. It is certain that it was not exterminated by the isolation of lepers, for in the first place it is doubtful whether leprosy is contagious at all, and in the second it is certain that the measures of isolation taken by our forefathers would not have suppressed it if it were contagious. The disease is of very slow progress, and the leper was never isolated until his leprosy was well advanced. There must always have been, therefore, many lepers in the early stages of the disease going about among the general population, and if leprosy is contagious at all it is not to be supposed that it is not contagious in the early stage, in which the contagion of most contagious diseases is virulent. Moreover, if it was the isolation that eventually put a stop to the disease it

is difficult to see why it should take 1200 years to do so. Sir Jonathan Hutchinson was of opinion that leprosy is due to eating fish that is decomposing or insufficiently cured, and that it declined with the abolition of fast days and of the practice of eating salt fish that occurred at the Reformation. In fact, however, leprosy was already practically extinct in this country before the Reformation, and it has disappeared as completely from Catholic as from Protestant countries. It is sometimes asserted that leprosy disappeared in consequence of the amelioration of manners and the adoption of greater cleanliness and better sanitation, but I know of no evidence that the customs of our ancestors in respect of cleanliness and sanitation were any better in the fifteenth and sixteenth centuries than in the seventh or the twelfth, nor that any improvement in this respect was earlier in this country than in France. In view of the difficulty of communicating the disease, even by inoculation, the surmise has crossed my mind that the bacillus may have been injected by some biting insect that is now become extinct, and may perhaps have undergone in the body of the insect some developmental change which enabled it to invade the human tissues with greater ease. It may be so, but there is no evidence that it is so, and the surmise remains a mere surmise. There is, however, another hypothesis which has a good deal of corroboration, indirect, it is true, but still of some weight.

The clinical descriptions of disease that we find in ancient and mediæval writers on medicine were so clear and so faithful that we have no difficulty in recognising in them the diseases that are known to us now. The most prevalent, the most widely diffused, and, in its later stages, the most easily recognised and most deadly disease that now afflicts European peoples, is undoubtedly pulmonary consumption; and it is remarkable that although there are in the old writers descriptions of disease that we may with some hesitation identify with phthisis, yet there is nothing in the writings of ancient and mediæval physicians to make us believe that phthisis was in their time at all comparable in prevalence with its prevalence now. I venture to put forward the conjecture that the bacillus of leprosy is changed into the bacillus of tubercle, and that tuberculosis has thus superseded leprosy as the chief scourge of mankind in modern Europe. In support of this conjecture I adduce the following facts. First, leprosy, from being the chief scourge of the European population, has spontaneously disappeared. Second, it seems probable that since the disappearance of leprosy tuberculosis has greatly increased. It is certainly as common now as leprosy used to be. Third, the bacillus of leprosy is very closely allied to the bacillus of tuberculosis, so that unless we are to repudiate the doctrine of evolution we must believe either that they are both descended from a common parent or that one of these is the parent of the other. Of the first alternative we have no evidence. There is no known disease that in the least resembles the pair, tuberculosis and leprosy; and these two are closely alike. Both are very chronic diseases; both are longer in duration than any other bacillary disease. Both are favoured by hereditary predisposition. Both have been held to be hereditary, and they are the only bacillary diseases in which heredity has been alleged to have any influence. Lupus is a bacillary disease of the skin of the face produced by a bacillus that is closely allied to tubercle—that is if you like, a

variation of the tubercular bacillus—a disease that closely resembles leprosy, that attacks the same part in much the same way, and produces with equal chronicity a similar disfigurement. In lupus we have, as I take it, the halfway house between leprosy and tubercle. We see the transformation actually in progress. That bacilli do change in virulence and in other qualities is beyond question. It is a commonplace. The whole practice of vaccination is founded upon it.

On this accumulation of evidence I found the conjecture that leprosy has after all not disappeared from Europe, or if it has it was only to reappear in the form of tuberculosis. In mediæval times there was no city, no burgh, without its leper house. At this day it is a pious aspiration that every city and every burgh should have its sanatorium for consumption. It would be curious if it were established that, unknown to ourselves, the great scourge from which we suffer is the lineal descendant of that from which they suffered, and we, their lineal descendants, treat it in the same way, but up to the present less thoroughly.

CIVIL MEDICAL PRACTICE AND THE WAR:

THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

At a meeting of practitioners in Glasgow and district on Dec. 16th last, presided over by Dr. John Barlow, President of the Royal Faculty of Physicians and Surgeons of Glasgow, Dr. Norman Walker delivered an address on the work of the Scottish Medical Service Emergency Committee. This committee, he said, which was constituted at the outbreak of the war, and consists of the heads of the Scottish medical schools with certain representative practitioners, had issued a memorandum,¹ the points of which he discussed and explained.

The first point was that the fee offered to a locum tenent taking the work of a practitioner engaged in military duty should not exceed 5 guineas a week. This recommendation had been very generally accepted.

The second suggestion, that retired practitioners willing to enable their professional brethren to serve their country should send their names to the Emergency Committee, obtained a good many names, but when they came to definite proposals it was not so easy for a practitioner in the neighbourhood of 60 to face a hard country or colliery practice. He appreciated the difficulties, and did not utter a word of criticism. Indeed, some men had heroically undertaken work which would tax their strength. But he thought there was room for those retired men who were unfitted for the whole work of a practice. There were many districts where a large part of the work was done in the consulting room, and this work could very well be done by such men, while the visiting was done by the younger men who had not been summoned to military duty. This called for organisation.

The third suggestion was addressed to the educational authorities, and was to the effect that school medical officers should be permitted to give at least part of their time to general work. Very little had

been done in this direction, and something more might be done. By a little harder work and by a little organisation two men might do the work of three. It was the local educational bodies from whom the proposals must come.

The fourth suggestion was that the visiting staffs of large hospitals, infirmaries, and asylums should consent to a reduction of the numbers of their medical residents and clinical assistants, and should themselves undertake a proportion of the work usually assigned to these junior officers. This had been faithfully carried out. All hospitals had cut down their resident staffs. One very distinguished professor of medicine was acting as his own house physician, and a well-known professor of anatomy for three months acted as house surgeon in the hospital attached to the school in which he was professor.

The fifth point was that in the larger towns young practitioners whose practices were not yet extensive should in pairs make an arrangement whereby one undertook the whole town practice for (say) two months, while the other acted temporarily in the country for a third colleague absent on duty; and so alternatively for successive periods. So far as he knew, no one had taken the advice in this direction. It was a method which he hoped young men would seriously consider. Lord Kitchener had advised men whose work is necessary for the successful prosecution of the war that they would be rendering just as good service to their country by continuing their work as by enlisting in the army. The men driving rivets on the Clyde to-day were in this position, and so was the young doctor who, by doing double work, enabled another to go on active service.

He admired the opportunity women had of demonstrating their fitness. He could not think that the front, or very near it, was the place for them; but in filling the places of the men who had gone to the war they had the chance of showing in spheres of work not as a rule easily open to them their real merit. He could not say that his earlier offers of women locum tenents were received with enthusiasm, but he could say of those who were accepted that once the novelty wore off the value of their work was appreciated, and he had before him now a request for a locum tenent—a lady preferred. No woman doctor who had the woman doctor's cause at heart had any business to remain idle just now.

It was a pretty safe prophecy that in the next few months with the officering of the newly enlisted men the period of stress would be greater, and as the new graduates almost all immediately joined the army, the remaining profession and the public would have to depend largely on organisation to cover the work. The new graduates should send in their names to the War Office at once, but they would not immediately receive commissions. He asked them not to idle away that waiting time, but to give it to the civil community.

The most complete example of organisation was found in Dundee, where an exceptionally large proportion of doctors were serving in some capacity with the colours. A very elaborate system had been designed, and was working with remarkable smoothness. There was not really much difficulty in the large towns, but in the real country districts matters were much more difficult. No one who was busy in his own practice could

¹ See THE LANCET, August 22nd, 1914, p. 530.