taminated it. Local causes, principally congestive inflammation, determined these deposits in the lungs; but they might take place anywhere in the body, especially in glandular structures. They tended to excite inflammatory changes in the tissues round about them, which became ulcerated, and so allowed their elimination.

According to more modern theories, true tubercle—the tiny adenoid lymphatic gland-like growth which spreads and multiplies in its periphery—is most often, if not quite always, a secondary feature in the lungs; it springs up only where connective tissue extends, and is found, therefore, most frequently and most easily, upon the pleura and in the interlobar and interlobular tissues. Any product of inflammation, pent-up pus, or tissue undergoing necrobiosis—death in a living coffin—may excite the formation of tubercle in persons constitutionally predisposed towards it. But most modern pathologists affirm that the solidification of the lungs which constitutes ordinary phthisis is not the tubercle-growth at all, or only secondarily so, but an infarction of the air-cells individually, or to the sum of lobules or lobes with cellular products of inflammation.

These pneumonic solidifications differ very little, if at all, in microscopical features, from those of ordinary catarrhal pneumonia, but exhibit less capacity for being reabsorbed after an uncertain and doubtless varying lapse of time, during which they act detrimentally, partly by the pressure upon the tissues about them, and partly as plugs excluding air and so obstructing the capillary circulation. They degenerate, soften, and break down, in consequence of inflammatory or softening changes which they have excited round about them.

Finally, the pneumonia spreads in enlarging circles, and is complicated by bronchitis; and the metamorphosed products of inflammation are partly expectorated, partly scattered broadcast through the body by the medium of the circulating fluid; and out of this condition of septicæmia and general gland stimulation true tubercle may spring up, like a fungus on its congenial soil.

Hence you see that both the older and the younger pathologists are nearly agreed, when they are discussing one and the same thing—phthisis, not tuberculosis. One calls its first beginning an exudation; the other, a pneumonic proliferation of cells, taking place in the alveoli.

This, then, is the modern doctrine which I wish you to understand: that tuberculosis is a general disease, which may pervade the body without noticeable implication of the lungs; but that phthisis is, in its sense and substance, a lung-disease with general constitutional symptoms.

One great difficulty in the classification of kinds of phthisis upon its morbid anatomy is, that this is really little known. I speak, of course, of the very early stages. If a patient die by accident, or after short illness, and some slight pneumonic infarctions be found in his lungs, it is very inconclusive reasoning to avow that these were the early seeds of a phthisis which he might have developed had he lived longer. Quite equally illogical is the deduction drawn from one or two cases of persons dying during pulmonary hæmorrhage, and in whose lungs blood-infarcts are discovered, that phthisis is the result of hæmoptysis.

I should be afraid to say at how many *post mortem* examinations upon the bodies of persons who have died presumably of phthisis, it has been my lot to attend; but in no single instance have I ever seen any evidence of the origin of the disease from blood-clots drawn into and softening in the air-cells. On the other hand, I have seen appearances the result of lung-embolism, stasis, and extravasation of blood, with degeneration and softening of tissue, and formation of small abscesses, as well as cases of pulmonary apoplexy, either of which may have suggested to Niemeyer his theory of the origin of certain forms of phthisis *ab hæmoptoe*.

In conclusion, accept this as my definition of what I understand by phthisis: a progressive lung-degeneration, beginning differently, but about whose modes of origin little is known certainly—in its progress limited to no one lung-element, and attended by febrile disturbance and general constitutional complications.

Important facts for you to bear in mind about phthisis are, then, that the tubercle-growth may be engrafted upon chronic lung-consolidations of various origins. Thus there is no form of phthisis which may not present this histological element as a complication; and there are forms of lung-degeneration in which this is the principal, if not the sole feature. But for these last, I should prefer the name acute tuberculosis of the lungs, to phthisis.

Now, of the disease defined by me, the varieties will not be many. Cirrhosis, brown induration, unilateral chronic pneumonia, amyloid disease, must be excluded.

To justify the separation of one form of phthisis from another, we must demand clear clinical distinctions. The cases must be different throughout, from commencement to termination—distinguishable by

symptoms, by course, by history, by duration, by issue, by amenability to treatment. Try them by this touchstone, and tell me if you can distinguish between a catarrhal and an epithelial phthisis, between an embolic and a hæmorrhagic, between a broncho-pneumonic and a lobular pneumonic; if you can separate phthisis with recurrent hæmoptysis from scrofulous phthisis, a tuberculo-pneumonic phthisis from a tuberculo-fibroid, a syphilitic from a drunkard's phthisis; for I cannot. And let me warn you against establishing separate varieties upon theoretical grounds that will not bear probing. The only three species or kinds of phthisis which I find it in my practice useful to distinguish from each other are—1, embolic* or septicæmic phthisis; 2, ordinary or scrofulous phthisis; 3, foreign body phthisis. And these are all influenced in their course and progress by the gravity of the original lesion, by the abiding or temporary nature of the exciting causes, and by the habit of body and temperament—the constitution, in one word, of the individual attacked. If these forms have existence at all, and really be unlike each other in etiology and pathology, we shall not have occasion to seek far and wide for typical examples of them, since the cases of phthisis annually admitted into the medical wards of our hospital form 17.22 per cent. of all the admissions. But for the clinical evidence of these I must ask you to wait, until I have further opportunity of addressing you.

NOTES TOWARDS THE HISTORY OF THE MEDICAL STAFF OF THE ENGLISH ARMY PRIOR TO THE ACCESSION OF THE TUDORS.†

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[Continued from page 113 of last number.]

THE next page of military medical history opens in the reign of Edward I, at the commencement of the fourteenth century. The Crusades had taken up the interval since the Conquest, beginning in 1096 and ending in 1291 A.D.; and it would appear that so late as the third crusade (Richard and Philip) these fanatical expeditions were unattended by any professors of medical and surgical knowledge. This can scarcely be wondered at when we reflect that, as concerns their spiritual wants, they were without special advisers, each crusader being provided before setting out with the consecrated elements; and as the functions of the priestly office were thus superseded, so were those of the leech by relics and amulets. Probably the direct intercourse with the Saracens may have caused respect for their superior medical attainments and practice, as the celebrated Arabian school was then at its climax, and the works of Rhazes and Avicenna were in high repute. It may indeed be credible that in a warfare where courtesies were not unknown, the surgeons in the suite of Saladin, and his humane brother Saphadin, may have afforded their aid to the wounded in the camp of Cœur de Lion. Although the crowned heads of England were not represented in the Crusades like those of France, yet their scions and their great nobles brought together large contingents, conducting them on French principles rather than by any independent nationality. Among the traditions of the Crusaders, we find that Robert, eldest son of the Conqueror, was distinguished by his many acts of bravery and chivalry in the Holy Land, which he left in consequence of a severe wound. On his return he landed at Brindisi, and tarried in South Italy to have his wound cured by the famous professors of Salerno. While under treatment, he received a wound of the heart from a fair Norman, Princess Sibylla of Apulia, who may have done the nursing, which was common in those days, as it has again become in our own, and he made her his wife.

Richard I was the only English king who undertook a crusade. He did this with a large army and fleet, but the chroniclers say nought of medical attendants either in this or in the fleet of Philip of France; and Ducange, in his notations on Vinesauff, who was with Philip, makes this the ground for doubting that there were any. Our own Roger of Hoveden tells us that the English expedition was detained at Rhodes owing to the sickness of the king. Soon after landing at Acre, both Richard and Philip were seized with a disease, "*quam Arnaldiam vocant*," of which they lay near to death, and they became bald; but

* By embolic phthisis, I mean a degeneration of lung-tissue commenced by arterio-capillary pluggings or embolisms, and attended by localised extravasations of blood and formation of abscesses. Highly instructive examples of this form of disease have been recently under my observation, and will afford materials for a future communication.

† Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.

by the mercy of God they recovered from their weakness, and became stronger and more resolute in God's service". This happened in June 1191. About a year later after his miraculous exploits in the recapture of Jaffa, Richard fell ill again; and, in broken health, he left Palestine in October 1192 A.D.

There can be no question of the mutual respect that existed between Cœur de Lion and Saladin; and it is a well recorded fact, that on the plain of Jaffa Saladin sent presents of fruit and of cooling snow to ameliorate the sufferings of his adversary; and with that fact in view it is credible that skilful Arabian physicians may have been sent to advise on his treatment. It is certain that if Richard were without a military physician in his train, he must frequently have felt the want of such a follower.

When Edward I was proclaimed King of England in November 1272, he was absent in the Holy Land on the eighth and last Crusade, in which he was to have co-operated with St. Louis of France, who unhappily met his death by dysentery before Tunis in 1270, on the outward voyage; and, from the silence of the Sire de Joinville on the point, there is ground to doubt his having had a medical attendant near him. Prince Edward of England would appear to have been situated better, as there was at hand an English surgeon to treat the murderous wound dealt him by an assassin at Jaffa in June 1272. Our contemporary chroniclers are silent on the romantic story of Eleanor sucking the poisoned wound inflicted on her husband. Carte, who is a very national English historian, giving his authorities, states: "The assassin, drawing a poisoned dagger, attempted to stab the prince in the belly, but the prince, endeavouring to parry it with his arm, received there a deep wound, and, striking at the villain's heels with his foot, seized the dagger and plunged it in his heart, though in wrestling it violently from him he gave himself a wound in the forehead. The wound in his arm appearing very dangerous and likely to gangrene, the prince thought fit the next day to make a will; *but the bad flesh being cut away by an English surgeon*, it was healed in a little more than a fortnight, though not so thoroughly but he felt from time to time exquisite pain, and the scar which was left dropped some moisture continually for several years, till it was again laid open and then entirely cured."* From this evidence, we may judge it to have been a punctured wound involving the bone, and the primary operation a deep incision or two for the relief of inflammatory tension. That a sinus remained, leading to an exfoliation that required a second incision for its removal, is the easiest way to account for the remoter consequences. The romantic stories of poison and suction may be altogether dispensed with.

This incident affords proof that Prince Edward had with or near him in Palestine, in the year 1274 A.D., a skilful English surgeon, whose name, unhappily, is lost to fame, but his art must tend to exalt our traditional ideas of the condition of practical surgery in that age. I think that this unknown individual has a fixed claim as an English army surgeon worthy to be remembered for having been instrumental in saving the life of the grandest of our Plantagenet kings.

King Edward I having experienced personally the value of surgeons in the field and in the camp, it is not likely that he ever forgot the lesson. There are no records of the military economy of his expeditions into Wales, nor of his first expedition into Scotland in 1298, when Falkirk was the great field of slaughter; but his second invasion affords to the inquirer its invaluable record of costs in the wardrobe accounts of royal expenditure A.D. 1299-1300, that form the starting-point of our economical history. It may be apprehended that it is only from the absence of similar accounts of older date that we remain ignorant of an earlier like organisation. Where money is recorded to have been paid for services rendered, we have landmarks of history at least as certain as the face of a medal or coin, the presentation of which has sufficed to set at rest many a disputed point. With this wardrobe account before us, we cannot hesitate to fix the year 1300 A.D. as a date when an army medical service had actual existence among us. There are charges in the marshal's (war-office) expenditure for a physician and his two juniors (*valetti sui*), and for two surgeons, with one of whom there were two assistants (*socii*). Some of these, as well as an apothecary, are introduced in the household accounts on some heads of expenditure, in a manner showing the distinctions then matured be-

tween military and household medical services, or camp and court. The names and qualifications and ranks of the individuals are as follows.

John de Kenle.....	Phisicus regis	Miles simplex.
John de Shireburn....	Valettus suus	Scutifer.
William de Rigethorn...	Do.	Do.
Philip de Belvaco ...	Cirurgicus regis	Miles simplex.
Edmund de Baunton...	Socius suus	Scutifer.
One name unknown...	Do.	Do.
Master Peter.....	Cirurgicus	Scutifer simplex.
Peter or Perroto	Apotecarius reginæ.	

Thus, we learn that in A.D. 1300, the professional distinctions of physicians, surgeons, and apothecaries, were recognised at our court, and it seems to me doubtful whether the last two names on this list were or were not of the same person. *Valettus* is an abbreviation of *vassallettus*, a diminutive of *vassallus*, holding lands by military tenure under a feudal baron as tenant *in capite* from the king. The designation was applied to youthful aspirants of rank, even to those of noble families, who served in the retinues of the kings, princes, or great feudatories, before obtaining knighthood.

With regard to emoluments: The physician De Kenle, and the surgeon De Belvaco, appear to have received the pay of simple knights, two shillings a day, when knights bannerets were paid three shillings. The assistant-physicians, de Shireburn and de Rigethorn, and the assistant-surgeons, de Baunton and his nameless associate, had one shilling a day, like mounted lancers, and vintners, or sergeants of twenty footmen. In addition, the surgeon was repaid for expenditure on medicine and appliances in the field or at the court, and the physician was allowed one shilling a day subsistence-money when absent from the courtier's table on the king's service.

Physicians, surgeons and their assistants, were allowed the keep of horses for their conveyance, but pack-horses seem not to have been allowed to the assistants. The army practice was to begin daily pay on the date of presenting the charger for valuation, after which its loss or injury was compensated if it happened "servicio regis"; and, in other cases, when that could not be strictly proved, compensation was made "ad elemosynam". These rules applied to all alike on the marshal's roll. Thus, the king's physician was paid "ad elemosynam" for a horse dead at Greenwich, and the king's surgeon was paid for three horses dead in Scotland, "servicio regis", and for one, "ad elemosynam", which he seems to have lent his assistant, Baunton, to carry his baggage on the march.

Another head of expenditure elucidates the status of these medical officers. The "Roba" list presents to us the clothing or uniform allowances paid to those on the marshal's roll and royal household. The first scale was an annual allowance of sixteen marks, or £10:13:4 paid to bannerets; and the second scale, eight marks, to simple knights. The king's physician, De Kenle, and his surgeon, De Belvaco, receiving the second scale, indicates their social position at court and in the army to have been with rank of knighthood.

The "valetti" of the physician and the "socii" of the surgeon are not named on the "roba" list; but they appear on the pay list as "scutiferi."

Pietro, "cirurgus," was of inferior rank to De Belvaco, "cirurgus regis," and his name appears among those of the courtiers, "scutiferi simplices," receiving only £2 a-year for uniform. As this "cirurgus" does not appear as such until A.D. 1302, and as Pietro, or Pierrot, "apotecarius reginæ," is named in 1300 and 1301, and not in 1302, I am of opinion that they were the same person. Having come from France with the young Queen Margaret, he was probably the first apothecary introduced into England, where he may have found his to be an inconvenient title,* and have changed it for the better known one of surgeon. There is evidence of his having been at York, in waiting on the Queen, in the summer of 1300, but no evidence of his being in Scotland.

To comprehend fully the relations of these men with the army invading Scotland, it is needful to be acquainted with the king's movements. The feudal system was in full operation, and he had ordered his barons to assemble with their vassals at Berwick in the autumn of 1299 A.D., he being at the same time under contract to marry Margaret, the sister of Philip, King of France. The marriage was celebrated in Canterbury Cathedral on the 8th of September, and the queen was left at St. Alban's on the 2nd of November. Edward joined his army at Berwick on the 20th December, when his barons protested against any warlike operations at a season when the roads

* In Gale's *Rerum Anglicanarum Scriptores*, we have, in the Chronicles of Walter Hemingford, a circumstantial description of the wound of Prince Edward: "Vocantur ergo chirurgici, et medicamenta imponunt. Sed post dies paucos, videntes denegrescere carnem, mussitaverunt inter se, nec erat ulla lætitia in populo suo, quod ille perpendens dixit eis: Quid est quod mussitatis, nonne sanari possum? Dicite mihi, nec timeatis. Et ait unus natiōe Anglus; Curari potes, sed oportet te dura pati. Et ille; Si passus sum, quidem fuero, nunquid sanitatem promittis? Et ait: Promitto quidem, et sub pœnâ capitis mei. Et ait: Committo ergo me tibi, et exipe quæcunque volueris. Mane autem facto incidit denigratam carnem brachii sui et projecit ex toto."

* Previous to this, the title "Apotecarius" was not unused in England, but it had a much more lofty signification, being applied to the king's treasurer or keeper of the chest or depository. Madox, *Hist. of Exchequer*, vol. i, p. 79, states that Bishop Nigellus of London paid King Henry II the sum of £400 for the patent of Apotecarius, king's treasurer granted to his son Richard Nigellus.

were quagmires. The castle of Stirling was abandoned to its fate, and the army dispersed until the summer of 1300 A.D., when it reassembled at Berwick, and, under the king's command, made some ineffectual incursions of Galloway.

The "wardrobe accounts" show that De Belvaco, "cirurgus regis," with his "socii," was present with the army in the fall of 1299, and that De Kenle, "physicus regis," was then at Caversham, by the king's command, in attendance on his daughter, the Countess of Gloucester, in childbed. In September and October, 1301 A.D., the "valletti" of De Kenle were with the army in Scotland, and thus we know that the medical staff of the army in 1200-1300 A.D., comprised both physicians and surgeons.

In comparing the estimate set on medical services at various periods of history, it is of interest to note that the physician and surgeon of the army then received the same daily pay as the Admiral of the fleet—the first of that rank in English history—and their subordinates the same as the captains of the ships composing the fleet. This is an outline of the *personnel* of the earliest recorded medical staff of the English army with its rank and emoluments. It was established by Edward I, worthily styled the greatest and most glorious of the Plantagenets, who may have been conscious of having owed his life to the skill of an English surgeon when in the Holy Land.

[To be continued.]

THE ETIOLOGY OF PSORIASIS.

By BALMANNO SQUIRE, M.B.

I THINK it not altogether improbable that the expression met with in the Bible, "a leper as white as snow," may refer to this disease. Certainly nothing that I have yet met with in the shape of the "leprosy of the East" (elephantiasis Græcorum) merits the application of such a phrase, whereas psoriasis is the only disease I have seen that fairly corresponds to such a description.

I have long noticed psoriasis to be specially common amongst the Jews of this and other countries. At the east branch of the British Hospital for Diseases of the Skin, where I have had a good many of the poorer class of Jews under treatment, I have found the disease proportionately so much commoner with them than with other persons, as to attribute the frequency of it amongst them to the influence of race. It is well known that psoriasis is at least very often an unquestionably hereditary disease. I may add that amongst such of the higher class of Jews as I have known, either as acquaintances or patients, I have found the same special frequency of psoriasis; I am therefore persuaded that psoriasis must have been a common phase of what was termed leprosy amongst them when all serious skin-diseases were confounded under that title. It might be objected to this that psoriasis is not contagious; but such investigation as I have been able to make in the nature of the "leprosy of the East" has almost assured me that it also is not contagious, although it is commonly supposed, even in countries where it is prevalent, to be highly contagious.

The conclusion which I have formed as to this latter disease is, that its prevalence in certain countries is a question of climate, and not a question either of race or of contagion. The contagiousness of leprosy (vaguely so called) is probably limited to that proportion of cases which are simply cases of syphilis. The hereditary cases of leprosy are probably cases of psoriasis. Psoriasis, unlike elephantiasis Græcorum, is not an affair of climate; but, equally unlike it, it is an affair of ancestry. I cannot profess to say in what proportion the disease is distributed amongst the various tribes of mankind; but I do not go merely on such data as I have already advanced, in asserting it to be especially common amongst those who are of Jewish descent.

In estimating the influence of race in the causation of any given skin-disease, one has to encounter under ordinary circumstances very serious difficulties. In the first place, skin-diseases are apt to shade off one into the other; and the diagnosis of individual cases as definite entities is commonly enough a question of opinion even amongst those who have fairly earned the reputation of being experts. In the second place, different races of mankind are often so indistinguishably blended in one individual that the diagnosis of the race is at least as difficult as that of the disease. But psoriasis is, of all skin-diseases, the most definite and distinguishable, even when complicated with other eruptions; and the Jewish features (for the reason that the Jews are the only Asiatic nation that has extensively located itself amongst us) are the most readily identified even when the race has been for several generations a mixed one. Accordingly, I have followed out the subject amongst the general community, and I have arrived at the conclusion that psoriasis is commoner amongst those of partially Jewish de-

scendant than it is with those who present no evidence of Asiatic origin. It will be understood that I am as far from asserting that every one who has psoriasis is of Asiatic descent, as I should be from saying that all persons who are of Asiatic descent have psoriasis.

It has been observed by Professor Hebra, in speaking of 3,000 patients treated by him for psoriasis, "Now these have, without exception, been persons of strong constitution and firm fibre, who were well nourished, and whose bodily functions were in perfect order: in a word, they have been blooming healthy individuals." I may add to this, that my own observations perfectly accord with this statement. The fact may possibly afford some explanation of what I have asserted, since the good average *physique* of the Jew is scarcely less remarkable than the unquestionably high average of his intellectual gifts.

THE URINE IN HÆMOPHILIA.

By J. WICKHAM LEGG, M.D., Casualty Physician to St. Bartholomew's Hospital.

FERDINAND UHLE, born December 26th, 1861, was admitted into St. Bartholomew's Hospital, under the care of Dr. Southey, on December 2nd, 1872. He was the subject of hæmophilia. When he was seventeen months old, spontaneous ecchymoses were noticed under the skin of the back and limbs. Epistaxis began at two years of age. Just before he was two years he fell and cut his forehead: he was treated by a doctor in Hanover, but the bleeding was not stopped till the child was almost dead. As a child, his nose bled every two or three months. About four years ago he had blood in his urine. He is said to bleed now occasionally when changing his milk-teeth.

His joints began to be swollen when about two years old. The knees, elbows, ankles, and small joints of the fingers, are swollen occasionally; the right knee is always bigger than the left. Four years ago, he was admitted into a hospital in London for his swollen knee; and, although the mother informed the surgeon in attendance of the patient's liability to bleed, leeches were applied to the joint: the bleeding from them, however, only lasted a day and a night. The patient has a brother, also the subject of hæmophilia; but there is no history of the disease amongst the other kinsfolk of the boy.

On December 3rd, he had blonde hair, gray eyes; he was anæmic. The left knee was much swollen; the patella floated upon the fluctuating swelling of the joint, but the ends of the bones forming the joint could be made out. The temperature and the heart-sounds were natural, as was also the liver-dulness. The spleen was not enlarged to palpation, though by some it was thought enlarged to percussion. The boy's appetite was good; he complained only of pain in the knee, aggravated at night. The knee was painted with tincture of iodine.

As the temperature was natural and the appetite good, it appeared to me a good case for investigating the amount of urea daily excreted; and I wish to express my thanks to Dr. Southey for his kindness in allowing me to make these observations. The boy was kept in bed during the ten days over which the observations extended. He had one motion daily. The urine was collected from 8 A.M. to 8 A.M.

On admission, the diet allowed was the milk-diet of the hospital—that is, twelve ounces of bread, two pints of tea, a pint of milk, and three-fourths of an ounce of butter, daily. To this was added, on December 5th, a mutton-chop daily; and on December 8th and 9th, four ounces of wine; but on December 10th the wine was exchanged for an extra pint of milk daily. The reaction of the urine throughout the period of observation was faintly acid; albumen was in no instance present, as tested by heat and nitric acid. No change of colour followed the addition of thirty or forty drops of fuming hydrochloric acid to a few grammes of the urine.

	Quantity of urine in cubic centimetres.	Urea. Grammes.
December 4—5	1170	20.6
„ 5—6	1130	18.08
„ 6—7	950	17.575
„ 7—8	1330	13.275
„ 8—9	Lost.	00
„ 9—10	1030	22.145
„ 10—11	920	16.56
„ 11—12	1100	19.8
„ 12—13	1700	16.35
„ 13—14	1230	17.835

The urea was estimated by Liebig's volumetric process with nitrate of mercury, allowance being always made for the presence of chlorides.

On December 18th, the boy's weight was very nearly twenty kilograms. A day or two after the last observation on the urine, a spon-