mercial carbolic acid. Our attention being drawn to this more particularly, we had no difficulty in detecting the odour, especially in the ventricles, and the nature of the case before us became manifest. There was general venous congestion in the thorax and abdomen, the blood being very dark and fluid. The lungs were congested and oedematous; and emphysema, both vesicular and intercellular, was well marked; the visceral pleura being raised in bullæ in several places over both lungs. The heart was quite empty; the left ventricle strongly contracted; the right more flaccid, but also empty. No coagula existed in the great vessels. The lungs, and the blood and fluid which escaped from them on section, exhaled the carbolic acid odour. Through a slight accident in removing the stomach, a small portion of its contents escaped into the pleural cavity. In these the odour of carbolic acid was most distinct. The mucous membrane of the mouth, throat, and œsophagus, was white, sodden, and corrugated, but not detached. The mucous membrane of the stomach, examined afterwards, was of the same character; at the cardiac end there was some injection, but no capillary hæmorrhage was observed. These membranes smelt distinctly of carbolic acid. The smell could also be perceived as far as the upper part of the jejunum, but not in the rest of the alimentary canal. The liver, spleen, and kidneys, were hyperæmic—all having a slight odour of carbolic acid—but the kidneys had a mixed odour of urine and carbolic acid. The bladder contained about eight ounces of urine, which when drawn off was observed to have a slight olive-greenish tint, and a peculiar mixed odour. It contained no albumen.

The appearances described, combined with the odour, were of themselves quite diagnostic of poisoning by carbolic acid; but, as confirmatory evidence, I applied, with the materials at my disposal, some tests to the urine and contents of the stomach, in a rough manner, reserving the rest for further analysis if necessary.

Bromine water (Landolt's test), applicable to the urine directly, was used, and a copious yellowish precipitate of tribromophenol was yielded by about a cubic *centimètre* of the urine. The amount of the precipitate was such as to indicate, without doubt, the abnormal existence of carbolic acid in the urine. Aware, however, of the statements of Städeler, Landolt, etc., that carbolic acid is a normal constituent of urine, and that in normal urine, in quantity about 500 cubic *centimètres*, a precipitate may be obtained of tribromophenol, or at least a substance which yields phenol when treated with sodium-amalgam, I reserved the urine for further investigation, more on chemical and physiological grounds than for confirmation of the fact of poisoning by carbolic acid. On examining the urine seven days afterwards (it having been kept in a corked bottle half full), I found that it had changed into a dark brown liquid, like the urine frequently observed when carbolic acid has been administered in small doses internally, or when carbolic acid lotions have been long applied externally. It had suffered little or no decomposition. This was a strong confirmation, if not demonstration, of the view that the dark colour of the urine observed under the conditions mentioned is due to oxidation-products of carbolic acid, and not to altered blood-colouring matter, as has been supposed by some. The oxidation had taken place outside the body, no doubt under the same conditions as lead to the urine being passed of that colour. This was interesting, as showing the passage of carbolic acid unchanged through the organism—a subject which has been investigated by Salkowski and others, and of interest in a therapeutical point of view.

In order to determine if any free carbolic acid still existed, I distilled the urine by itself, without the addition of sulphuric acid, in order to avoid such a fallacy as Hoppe-Seyler has pointed out—viz., that the action of sulphuric acid may develop phenol from indican, or some allied substance, existing normally in urine. The distillate yielded a distinct reaction with bromine water; thus indicating that the carbolic acid had passed into the urine unchanged, or at least partly so, and that the process of oxidation had gone on outside the body.

By distilling the liver and contents of the stomach with sulphuric acid, I obtained a distillate in each case giving the reaction, with Landolt's test applied to about a cubic *centimètre* of the liquid. Landolt's test is by far the most delicate for carbolic acid, in such small amount as can be obtained by distilling substances containing it themselves in such minute quantity. I could not obtain the reaction with perchloride of iron, or ammonia and chloride of lime, with such portions of the unconcentrated distillate as yielded Landolt's reaction distinctly. I may mention here, that the blue-colour reaction which is developed in very dilute solutions of carbolic acid by the successive action of ammonia and chloride of lime is one which requires considerable care in its application, and does not manifest itself speedily when performed in the ordinary manner; it may be obtained readily, in a short time, by placing a few drops of the solution on a porcelain lid, adding a drop of ammonia, and the placing on the surface a small

clot of chloride of lime. The blue colour rapidly appears round the particle of chloride of lime, and soon becomes intense and characteristic.

Dr. Littelljohn informs me that, in the course of another day after the *post mortem* examination, a roundish parched-like spot, different in colour from the surrounding skin, had developed itself on the lips. This was valuable evidence of the source of the poison. It seems that the boy had been given to pilfering from the cupboard in which the nurse kept some of her own things. At the time she had in this cupboard a pint bottle, containing a strong solution of commercial carbolic acid for scrubbing purposes. The mark on the lips indicated that the boy had put this bottle to his mouth, thinking it contained something to drink, and that, having discovered his mistake, he had endeavoured to make his way back to bed, but had fallen down before he had got more than half way. Without having made any quantitative analysis, I judged that the quantity swallowed could not have been large, but it would be impossible to state anything definite regarding it. Death must have taken place within eight hours.

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

By W. R. E. SMART, C.B., M.D.,
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[Concluded from page 141 of last number.]

THE next page of the history of the English army lies in the reign of Edward III, the glorious grandson of Edward I. It embraces the wars of that monarch for the crown of France, by claim through his mother as daughter of Philip IV, and is filled with the records of Crecy, Calais, and Poitiers, and of the great naval victories of Sluys and Winchelsea, but it closes with the surrender of all the hereditary possessions of the Plantagenets in France. In these wars the very principle of feudal service was undermined, and the army and navy of England first became "royal services" in the pay of the king, as it was not possible to carry on such wars on the feudal principle of forty days' service in the field.

The muster-roll of the great army with which King Edward invaded France in 1346 is extant; but with regard to its medical staff it is silent, except that the "Welsh," or British, who appear therein for the first time as a distinct body of troops in the continental wars, under the banner of the Black Prince, had an attendant physician of their own race.

Froissart makes no mention of any distinguished surgeons, nor does he allude to any services of members of the medical profession. It is inconceivable, however, that so large an army, whose stay in France was protracted, and which was greatly harassed by sickness, could have been less considered and provided for in this particular than was the army of the king's grandfather in the invasion of Scotland, A.D. 1300. It is more probable that the great barons who brought their contingents for the king's service, receiving the pay for their followers, had the engagement of surgeons, among others, in their own hands; and thus, as we know nothing of the economy of those separate contingents, we must ever remain in the dark concerning the medical affairs of the great army that won Crecy.

The age was one of general progress and of consolidation of Normans and British into the English nation, and yet there are no tangible proofs of progress in the manner in which the fighting men were cared for when wounded or sick. Our national records prove that the king esteemed very highly the medical services rendered to himself in England, and was bountiful in rewarding those who performed them, and this makes the silence of chroniclers on this point the more unaccountable.

The first half of the fourteenth century was the era of the moulding of our profession into its present form. Our universities were established and granting degrees in medicine. Physicians were men of such education as to make them masters of colleges and teachers of the natural sciences, and to lead to their employment on diplomatic missions which had been mainly the province of churchmen.

Gilbertus Anglicus had written his work on medicine, that proves him acquainted with the writings of the Greek and Arabian physicians, which he condensed before A.D. 1220.

John Ardern, the first English writer on surgery, lived at Newark 1349 to 1370, when he settled in London, obtaining celebrity in both

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

places by his treatment of fistulous tracks. His work is entitled "A Treatise on Fistula in the Fundament and other places, and Impostumes causing Fistulæ." He was a self-taught man, like Frere Jacques.

Anatomy was taught at Bologna, 1315 (under prohibition from Rome), and soon afterwards at Montpellier and Paris. The father of modern surgery, Guy de Chauliac, laid its foundations in France, and a college of barber-surgeons was instituted, 1371. In England the barbers were obtaining corporate strength in the city of London, where supervision by one of their order was instituted in 1308 A.D. Another step in advance was recorded in 1354, when, by order of the municipal council, a prior and three surgeons of the city were directed to make inquest of the results of treatment, by John le Spicer, of Cornhill, of a severe wound of the jaw, and they reported that it had become "apparently incurable through want of skill" on the part of that practitioner, whose name is suggestive of his being an apothecary and not a surgeon.

In A.D. 1369 three master surgeons of the city were sworn at Guildhall to inspect and superintend the practice of barbers; and in consequence of surgery (minor) being pursued as a calling by unknown barbers from the country, and by women, an order was given, A.D. 1376, that two master barbers of the city should examine barbers, and that none not possessing their licence should be admitted to the freedom of the city. Thus we see that in England surgery was fostered in its infancy by municipal rules rather than by state laws or charters. The facts concerning the *master surgeons* of the city of London point out emphatically that there were then professors of the art who were not mere barbers, and there is a military instance proving that these were in high repute.

In the year 1344 Robert, Count of Artois, conducted an English army in Brittany, and took the fortress of Vannes, which was shortly after retaken. Froissart relates—"Sir Robert was sore hurte, and scapped hardly untaken. He taryed a season in Hennebon, and at last he was counsayled to go into England to seke helpe for his hurtes; but he was so sore handled on the sea, that his soores rankeled, and at last landed, and was brought to London, and within a short time after he dyed of the same hurtes and was buried in London in the church of Saynt Paule, with great honour." This instance shews that in 1344 the skill of the master surgeons of London was famed.

Guy de Chauliac, who flourished at Avignon and Lyons in the reign of our Edward III., in classifying the surgeons of his day, states that those who attended the armies were chiefly Germans, who used charms, potions, oils, and wool in their practice; and we have no means of judging whether the English army surgeons were more enlightened or not. It is not likely that they were, as such practice with boiling oil for gun-shot wounds, under the belief of their being poisoned wounds, continued until Ambrose Paré demonstrated the fallacy which had so long occupied the mind of all army surgeons.

There is another military incident of this period, the record of which will be found in Rymer's *Fœdera*, which may be adduced as the first known instance of a medical board to decide the question of capability to serve. It happened after the battle of Poitiers, A.D. 1356, that a question arose between Sir Denys Morbek, Knight, and Bernard de Froyes, Esquire, as to which of them King John of France had surrendered. The issue was left to the ordeal of battle; and before King Edward III. departed for France, in 1359, he directed that the disputants should appear before him wherever he might be on the next Candlemas, to fight their duel. Before that arrived, Sir Denys declared himself unable to proceed, and thereon the King's Council ordered a survey of his person, the particulars of which are very clearly reported in the official document, a letter patent bearing the sign manual. Sir Denys was visited by a knight, the Dean of Lichfield, and two clerks of the chancery, who recited to him the circumstances of the appeal to arms made by Bernard de Troyes at Sandwich prior to the king's departure into France. To this he replied stating his incapability of following the king, through his illness, which confined him to bed. "And in order to know better the truth that the said Denys did not feign, they caused him to expose his body, arms, hands, and feet, and after seeing these it was the opinion of the surveyors, and also of the notaries, physicians, surgeons, and all others present, that on this account the said Denys was, by his disease in body and limbs, so wasted, broken down, dried up, and debilitated that he could scarcely recover, unless God wrought on him a miracle.

"And the said Denys made oath to the same on the Holy Gospels, and also Master John Paladyn, Mire, and John of Cornhill, Surgeon, examined thereon, swore on their oath on the Holy Gospels, and on their honor, and on peril of their souls, that the said Denys was so enfeebled by the said disease that he could not help himself, nor move foot, leg, arm, or hand without aid."

During the next five years Sir Denys received small sums from the

Exchequer, and after his death the widow* who had nursed him made application to it for the expenses of his last days and burial. Such was the end of a brave soldier, to whom a King of France was said to have given his glove in token of surrender.

The part of the medical profession in this business is interesting to us, as it shews most clearly that about the era of Crecy and Poitiers professional opinion was made the turning point for decision of a question of military honour and discipline, and that the process was guarded by very strict forms.

With regard to Master John Paladyn, Mire, and John of Cornhill, Surgeon, it may be asked—Were they, or had they been, army surgeons, as they were engaged on this essentially military decision?

Master John Paladyn was styled "our physician" by the king.

John, of Cornhill, was probably a master surgeon of the City of London, like Master Paschal, Master Adam de la Poleterie, and Master Davidde Westmorland, whose names appear in 1354 A.D. I consider it possible that men of that class may have derived their eminence from service with the king's army, just as we know that the great Ambrose Paré—who made for himself, two centuries later, the reputation of Master Surgeon of Europe—divided his time between service in the field and his barber-surgeon's shop in Paris.

Of the state of medical practitioners in London in the reign of Edward III. we have the direct evidence of Chaucer, father of English poetry, in his *Canterbury Tales*.

"With us ther was a Doctour of Phisike,
In all this world ne was ther non him like
To speke of phisike, and of surgerie;
For he was grounded in astronomie:
He kept his patient a ful gret del
In houres by his magike naturel.
Wel coude he fortunen the ascendent
Of his images for his patient.
He knew the cause of every maladie,
Were it of cold, or hote, or moist, or drie,
And wher engendred, and of what humour,
He was a veray parfaiete practisour.
The cause yknowe, and of his arm the rote,
Anon he gave to the sike man his bote."

In this there is the combination of physician, surgeon, and astrologer, who was also a good linguist, skilled in the writings of the ancient Greek and Arabians—a master in the science and literature, as well as in medicine and surgery. The moral grandeur of his character, when surrounded by much that was degrading to that of his companions on the pilgrimage, is delicately wrought out in the purport of his exquisitely told tale, where "men may see how sin hath his merite."

"The worm of conscience may agripe
Of wicked lif, though it so privee be,
That no man wote thereof sauf God and he."

Whether Chaucer formed this flattering ideal at court or in camp, or in both, we may not find. At the former, Master John Paladyn, the king's physician, was before him; and in the camp he, as a man of letters, would have associated among such as "speke of phisike and of surgerie" from their equality of rank, as "vassaletti." His military service seems to have been rendered in 1360 A.D., at the age of thirty-two, when ardent minds are most open to receive lasting impressions, and to form types of character with mental record for later use. The pilgrimage took place in 1383 A.D., and these inimitable types of English mediæval personages were given to the world at a later date. Certainly our profession may take pride in Chaucer's ideal attributes, as they show, at least, the respect in which its professors stood in his day; and military surgeons may assume that men of that stamp then served in war, and that Chaucer may have discovered his type among them when he was serving in France in 1360.

The next names that come prominently forward in the medical history of our army are those of Master Nichol Colnet, Physician, and Master Thomas Morestede, Surgeon, to King Henry V., who were both present with the king in the great battle of Agincourt. Their engagement to serve marks a grand epoch in military medical affairs, in the formation of a surgical staff entirely under the control of Thomas Morestede.

In preparation for the expedition to France, a new system was inaugurated by indentures or legal instruments drawn up between the king on the one part, and the Dukes of Clarence and York, the Earl of Salisbury, Lord Scrope, and Sir Thomas Tunstal, severally, on the other part, to attend the king with contingents of their vassals and freemen in the war on king's pay. And similar instruments were drawn up between the king and his physician and surgeon to afford

* *Calendar of State Papers*, Issue Roll of reign of Edward III., an. 37, 3rd March (1364): "To Mary Rous prosecuting at the King's Council the claim of Denys de Morbek, who asserted that whilst he lived that he took John of France in the war at the battle of Poitiers. In money paid to her of the king's gift in aid of her expenses, £3 6s. 8d." N.B.—There are other payments on these rolls relating to this affair.

him their professional services for one year; the physician to take with him three mounted archers or men-at-arms in his suite; and the surgeon, twelve men of his own profession and three men-at-arms likewise.

The scale of pay of the army was fixed—

	£	s.	d.		£	s.	d.	
For a Duke.....	<i>per diem</i> ...	0	13	4	<i>per annum</i>	243	16	8
„ Count or Earl	„	0	6	8	„	121	3	4
„ A Banneret	„	0	4	0	„	73	0	0
„ A Knight	„	0	2	0	„	36	10	0
„ A Scutifer (esquire)	„	0	1	0	„	18	5	0
„ A Mounted Archer	„	0	0	6	„	9	2	6

But for the last two grades the scale differed for services in Gascony or France; the above being received, together with rations and forage, whilst in the adversary's territory; and increased pay, without rations or forage, while in the king's dominions in England or Gascony, where a scutifer with four horses received gross pay of forty marks, or £26:13:4 *per annum*; and a man-at-arms with one horse, £13:6:8 *per annum, pro ratib.* By comparison of these scales, it may be inferred that the net personal pay for the military services of a scutifer when Agincourt was fought was one shilling, and that of a man-at-arms 6d. a day, that the daily rations of a man were valued at 2d., and the forage of a horse at 1d. a day; but it must be borne in mind that in actual weight of silver the shilling of that time was equal to 2s. 9d. and the penny to 2½d. of ours, and that twelve shillings was the price of a pipe of French wine. The physician Colnet, and the surgeon Morestede covenanted for the pay and allowances of "scutifers" for themselves, and for those of "mounted men-at-arms" for their followers. They all participated likewise in a monetary allowance of 100 marks, or £66:13:4 a year to every thirty men from the dukes downwards, or £2:4:4½ *per man* whilst serving in the enemy's territory. This was termed a reward or gratuity given in the field.

For the gains of war in booty and ransom, their covenants were the same as those of all the leaders, excepting the Duke of Clarence, in whose indenture ransoms are not mentioned. Of all booty, one-third was the king's, together with all gold, silver, or jewels exceeding the value of ten marks—£6:13:4; and should the physician or surgeon or any of their suite capture a king or any princes, or chiefs, they were to be given up to the king, who should make reasonable satisfaction to the captors. With regard to this point, reference must be made to the capture of King John and the Dauphin of France at the battle of Poitiers sixty years earlier, out of which a great difficulty arose. Froissart tells us in Chapter 116—"That day whosoever tooke any prisoner, he was clere his, and might quyte him or ransome him at his pleasure." We may, therefore, infer that the dispute between Sir Denys Morbeck and Bernard de Troyes was based on their hopes of receiving a king's ransom. This was fixed by the treaty of Bretigny, A.D. 1360, at three millions of French crowns, equal to half a million sterling, of which neither of the claimants would appear to have received anything beyond an occasional dole, one of them dying in distress after great sufferings.

It is worthy of point that these covenants for military services were made only with the great leaders and the chiefs of the medical staff, who were made the receivers of the wages of all their followers for distribution, and each held a deposit of the king's jewels as security for pay. This was not acquitted so punctually by our Plantagenet kings as it is in our day, as we read in Sir E. Ellis's *Historical Letters* (vol. i, 2nd ser., Letter xxxi) that in 1423, a year after the death of Henry V, Sir Thomas Rokeby petitioned the Duke of Gloucester, Protector, and the King's Council, "that by endenture, he went to France with his retinue in the 4th year of the reign of Henry V (A.D. 1417) for a yere, and was detained there from yere to yere until four yerres were nere spended and passed, for the whilk time a great part of the wages is behind and nowth paid him to his great hindring and annentifying." His petition was granted. Let us hope that, if Thomas Morestede's men of his calling were detained thus from their barber-chirurgeons' shops in the City of London, they were treated better than Sir Thomas Rokeby was.

Morestede was an eminent member of our profession; he was Surgeon to three of our kings—Henry IV, V, and VI—and, as Henry V died of some surgical malady, it is probable that he was then in attendance on him at Vincennes, A.D. 1422.

Morestede retained his influence at court after the restoration of the House of York, as we find that in the first year of the reign of Edward IV, A.D. 1461, a charter of incorporation was granted to the barber-surgeons of London, securing to them corporate rights under the protection of the medical Saints Cosmo and Damien; and this was effected through the influence of Thomas Morestede, surgeon, and Jaques Fries and John Hobbes, physicians.

Now, as this charter of incorporation of the barbers of London was

the progenitor of all subsequent charters to the companies of Barber-Surgeons (Henry VIII), Surgeons (George II), and College of Surgeons (George III), it may be asserted that Thomas Morestede, chief of the surgical staff at Agincourt, used his influence at court beneficially to the profession in its surgical branch.

To complete the main object of this paper, I recapitulate the names of military medical men that have appeared on the pages of the history of our country prior to the accession of the House of Tudor.

A.D. 43.—Scribomanus Largus, who attended on the Emperor Claudius in his campaign in Britain.

A.D.—Anicius Ingenuus, surgeon of the 1st Cohort of the Tungrian Legion, who died at Chester-in-the-Wall.

A.D. 1066.—Nigellus, medicus, who came over with William the Conqueror.

A.D. 1299-1300.—Kenle, John de, physicus; Belvaco, Philip de, chirurgicus; Shireburn, John de, Rigethorne, William de, physici-adjutores; Baunton, Edmund de, and another, chirurgici-adjutores; who composed the medical staff in the invasion of Scotland under Edward I.

A.D. 1415.—Colnet, Nicol, physicus; Morestede, Thomas, chirurgicus, with twelve coadjutors—names unknown—who composed the surgical staff present at the battle of Agincourt, A.D. 1415.

THE VARIETIES OF PHTHISIS.

By R. DOUGLAS POWELL, M.D.,

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I WOULD ask to be allowed a little space briefly to comment on a lecture by Dr. Reginald Southey, on the Varieties of Phthisis, which appears in the JOURNAL of last week, and in which he incorrectly states my views, elsewhere expressed, in his attempt to bring into discredit the classification of the disease on a pathological basis. To criticise Dr. Southey's criticism of my book would be very easy, but would take up much space, since it would require several comparative quotations. To give a striking instance, however, of his misunderstanding of my views, he observes that, in speaking of hæmorrhagic phthisis, I do not specify whether the blood comes from the capillaries of the bronchi or alveoli, and presumes, therefore, that I regard this variety as *phthisis ab hæmoptoe*, in the same sense in which Niemeyer employed that term. In fact, however, at page 61 of my book, I deny that the hæmorrhage is from the bronchi, and at page 66 give reasons for assuming that it is from the lung—the result of active pulmonary congestion. On other points, particularly respecting fibroid phthisis and recurrent hæmoptysis, he represents my opinions as being nearly the reverse of those I have really and clearly enough, I think, expressed. For the rest, I must leave it to those who think it worth while to look through the few chapters in the work referred to and judge for themselves. It can scarcely be expected, however, that the students—before whom I assume that the lecture was delivered—will take the trouble to do so.

Dr. Southey incidentally accuses me of want of "lucidity," compared with that of the great German Professor, Niemeyer. Such a comparison dazzled me, and I preferred to look to Dr. Southey himself for an example of lucidity of expression, for my instruction, and naturally turned to his definition of phthisis—for Dr. Southey, like the rest of us, is not content with any one of the many definitions extant, but must have one of his own—as illustrating his best style in this respect. Dr. Southey understands phthisis to be "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." Surely, I thought on reading this, Dr. Southey might have more briefly and lucidly expressed his notion of phthisis, as being "a highly complex disease, and one entirely beyond human comprehension." Dr. Southey proceeds to contrast, among others, the terms *catarrhal* and *epithelial*, *broncho-pneumonic* and *lobular-pneumonic*, as applied to phthisis, and suggests a somewhat complicated "touchstone" by which they cannot be distinguished. I fancy most people had already regarded them as synonyms before Dr. Southey subjected their relationship to so severe a test. I cannot, of course, fully appreciate Dr. Southey's difficulty in distinguishing between the other varieties of phthisis he refers to, until I have learned from his next lecture what he means by a "scrofulous" phthisis, and what "clinical evidence" he can adduce in favour of the separate existence of a "syphilitic" and a "drunkard's" phthisis.