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**THE REFORMATION OF ENGLISH MILITARY MEDICINE  
AND THE ARMY OF ELIZABETH I IN FLANDERS,**

**1585-1603**

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## ABSTRACT

Queen Elizabeth the First committed an army to Flanders in 1585 to support the cause of the Protestant Provinces of the Low Lands against the Spanish.

It had become established that medical 'practitioners' should accompany armed forces. The practitioners were a polyglot group levied from village healers, licensed and unlicensed practitioners, as well as apothecaries and barber-surgeons.

Despite significant medical and surgical advances on the Continent of Europe, particularly from the advanced concepts espoused by Paracelsus, there is little evidence to support widespread use of new initiatives in the English army. Wounds of a kind new to most 'practitioners' were encountered, due to the introduction of gunpowder-fueled firearms and cannons. Severe and deforming wounds caused by the impact of low velocity bullets were the results of the new battle tactics. Burns from gunpowder mishaps needed new approaches in treatment. Some changes to initiate new concepts in military medicine did occur but were the result of informal pressures, probably learned in the field, and not by formal teaching.

Significant changes in the recognition of the basics of hygiene in the armed forces occurred in the late sixteenth century and some attempts to implement these was found in the army disciplinary codes. The attitudes towards prisoners and wounded were also changing with compassionate treatment being shown to the victims of war. The need for hospitals for the wounded did not develop in England until after the Flanders campaign

The English forces suffered extreme privations due to bad leadership resulting in loss of morale, starvation and desertion. Lack of pay for the troops was a major issue throughout the campaign.

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## INTRODUCTION

As a practicing physician, I am frequently in contact with patients who recall a 'family cure' for some particular ailment. The 'cure' rate was at times astounding as the patient recalled and frequently entailed taking the cure with some type of ritual often involving cycles of the moon. Similar stories over the years have caused me to ponder whether modern medical knowledge would be able to determine if significant medical advances had occurred during the 'folk medicine and witchcraft' era in the reign of Queen Elizabeth the First. Did our medical forebears blend their previous learning based on theories of 'humours, vapours, spirits and astrological auguries' to new scientific concepts as they developed?

What better time to attempt to explore this question than in the time of Elizabeth when the cutting edge of warfare was undergoing a major transformation in England and elsewhere. The medical practitioners prior to the Reformation had been exposed for centuries to the cut and slash wounds of spears, lances, arrows and similar weapons. There was now added to the military medical problems the terrible wounds caused by bullets, shot, explosions and shells all derived from the introduction of gunpowder.

Queen Elizabeth had a land and sea war with King Philip of Spain at this critical time. It could be surmised that the army would bring together medical practitioners to exercise their skills in healing both the wounded and the sick. It would be expected that they would bring with them the latest in medical and surgical approaches something that occurs today in wartime. My research has shown that the Elizabethan 'medical practitioners' were mostly a group of 'village healers'.

England was a backwater in developing and utilizing the advances in medical progress. The Company of Barber-Surgeons was the most organized medical group in England. The Royal Colleges of Medicine and Surgery were in their infancy, and consisted of selected men coming together to debate medical philosophy rather than practical steps in improving medical treatment.

The universities of England had not accepted the challenge of changing medical philosophy. In Spain, Switzerland and Germany, the medical practitioners were well advanced in opening new pathways of treatment for medicine and surgery. An enterprising English physician or surgeon who wished to further his skills needed to travel to the Universities of Europe.

Some could assume that progress in the art of medicine in England was related to the fact that more intellectual people were now studying medicine. However this assumption is patently incorrect as many factors are involved in the evolution of any step forward that may lead to better knowledge. Intelligence may be one, however the need to theorize, to invent, to test and to record make up the cornerstones upon which a science is transformed to a higher plane in the evolution of knowledge. To seek answers to medical enigmas represented the nucleus of Reformation medicine and the transmission of the gained knowledge to further practice in peace and war, its objective. Many Continental medical schools had initiated changes in alchemy, anatomy and clinical observation, to explore new knowledge. The challenge was to evaluate from the limited sources if the principles for progress were being followed in England and if so with what effect.

It became obvious that the practitioners of the sixteenth century were not dull witted, indoctrinated only with folklore and dubious secret practices but many were among the intellectuals of their time. The contact between like-minded persons to be able to discuss and to debate matters freely can only occur when communication of ideas can be exchanged. The Royal Colleges and the Universities of England had not developed to this point. In the late sixteenth century the development of the printing presses assisted in spreading knowledge but certainly too late for the ambitious practitioner. For him his skills needed to be learnt on the job. Knowledge was passed down from the scholars who had ventured overseas but it seems clear that 'word of mouth' was probably the most potent means of conveying practice changes. The English soldiers 'in the field' appear often to have initiated a press towards seeking better conditions having learnt from their Continental



colleagues that there were other ways of approach to wounds and overcoming illness leading to better outcomes.

Leaders, both political and military, were discovered on both sides of the conflict who showed varying degrees of care for the well being of their men. Unfortunately to many of these 'great' leaders, the fate of the mere fighting man assumed a low profile, so low that to some it would appear that every fighting man was expendable. In England, this apparent contempt changed during the Flanders campaign between England and Spain as manpower shortages became more recognized. The need to assist the troops to have better health both at war and in peace became a greater issue within the government. I found little to suggest that the medical practitioners were concerned with the situation of the ordinary soldier. Equally there is little evidence to suggest that the English medical practitioners in the army were able to change hygiene practices in the army or to cope more effectively with the intrinsic sicknesses found in the armies of that era.

It would seem that the soldiers expected little assistance from the medical practitioners in the event of illness or wounding. It seems that they would be content with the level of treatment that they would expect to receive in their own home environment.

To the professional soldier and to the army volunteers, the possibility of death or maiming during the course of their service must surely have been an accepted hazard, which they contemplated on the basis of previous experience. The possibility of wealth and promotion to a 'better life' may have played its part. If they became heroes they would receive power, honour and fortune. This was well observed by Matthew Sutcliffe in 1593 when he wrote: -

By great honours, men are encouraged to make great adventures. Men do willingly hazard, and bestow, where there is profit, and honour looked for. There is best service, where there is greatest honour for well doing, and contrariwise where there is no reward, there is no man desireth to be singular. <sup>1</sup> (Figure1)



# THE PRACTICE, PROCEEDINGS, AND

Lawes of armes, described out of  
the doings of most valiant and ex-  
pert Captaines, and confirmed both  
by ancient, and moderne exam-  
ples, and precedents,

BY MATTHEVV SVTCLIFFE.

Luke 14.31.

Τὸς βασιλεὺς ἀμεινόμενοι συμβαλεῖν ἑτέρῳ βασιλεῖτις πόλεμον, ἔχῃ κοβίσει  
πρῶτον βελιούτατον δύνασιν ἵνα ἴν δὲ καὶ χιλίοι ἀπαρτῶσι τὸ μιστ' ἢ  
κοσμηχίλιας ἰσχυρότερον αὐτοῦ;

What king going to make warre with a forreine prince, sitteth not  
downe first, and taketh counsell, whether he be able with ten  
thousand, to meete him that cometh against him with twen-  
tic thousand?

Cicero, offic. lib. 1.

*In rep. maxime conservanda sunt iura belli.*

Ibidem.

*Sunt qui quod sentiunt, etsi optimum sit, tamen invidiam  
metu non audent dicere.*

## IMPRINTED AT LON-

don by the Deputies of CHRISTOPHER  
BARKER Printer to the Queenes most ex-  
cellent Maiestie.

1593

Figure 1. Title page of Sutcliffe's 'Lawes of Arms', 1593

The bulk of the armed forces were conscripted. My research shows that the levied soldier from rural and urban society was probably often basically unhealthy and unfit to undertake the hardships of a military campaign in the wet, boggy and the often snow bound areas of Flanders. The records show that the troops were poorly fed, underpaid, disloyal and poorly trained.

Endeavouring to assess advances in the progress of the medicine because of the Flanders campaign has proved to be a difficult undertaking. Records other than those from within the Government are few and fragmentary. Many questions cannot be adequately answered and often suppositions about the health status of the general population because of advances in medical practice can only be inferred. Slowly significant changes in practice did occur and equally slowly the status of the fighting man improved as did the health of the general population.

It is apparent from my studies that there was no great sudden explosion of military medical science. I found that the application of new medical ideas in the military was a gradual process with only a few exceptional men able to achieve greater success than those trained by folk lore and with mystic arts.

## REFERENCE

- <sup>1</sup> Sutcliffe, Matthew, *The Practice, Proceedings and Lawes of Armes*, London, 1593

## CHAPTER 1

### WHY WAR?

Why did Elizabeth the First mount a military expedition to the Netherlands in 1585? Queen Elizabeth the First of England who reigned from 1558 to 1603 was the second daughter of King Henry the Eighth, who reigned from 1509 to 1547. Henry the Eighth had committed England to Protestantism and although King Edward the Sixth (1547-1553), his heir, was staunchly Protestant, there were strong anti-Edwardian factions who were Catholic in their belief. Although accurate figures are not available, roughly 20% of Londoners were Protestant in 1547, and in the provinces many less.<sup>1.1</sup> The death of Edward introduced the reign of Queen Mary Tudor (1553-1558), the elder daughter of Henry and a declared Catholic and reintroduced the possible revival of Catholicism. This possibility was made even more plausible by Mary's marriage to Philip of Spain, the then regent of Spain and heir to Charles the Fifth of Spain.

In the Low Lands or the Netherlands, the merchants were wealthy and the cities semi-independent of the rule of Charles, the Duke of Burgundy, later King Charles the Fifth of Spain. Many of the provinces of the Low Lands embraced the new religious freedoms offered by the teachings of the Protestants. Following the abdication of his father Charles in 1556 Philip became King Philip the Second of Spain as well as the titular King of England by virtue of his marriage to Mary. Philip was determined to bring the provinces under his complete dominance by economic and military means. Hand in hand with this desire was the determination of Philip to restore the Roman Catholic faith to the entire Netherlands. The resulting Dutch War of Independence was not formally concluded until the peace of Münster in January 1648.<sup>1.2</sup>

The year 1585 was a pivotal time in the history of Elizabeth's reign and caused her to change her policy of defensive neutrality towards Spain. The government adopted an open anti-Spanish foreign policy and Spain became

the enemy in place of the traditional enemy, France. Many issues had been fermenting between England and Spain over previous years but uppermost was religious turmoil in England stirred by Mary and Philip and the possible loss of English trade to Europe that could follow if Spanish interests controlled Antwerp. The suspicion grew in Protestant English minds that Catherine de Medici of France and Philip were planning a great Catholic coalition. This was fueled by the arrival in August 1567 of the Spanish main field army of 40,000 men in the Netherlands under the Duke of Alva. Although the army primarily was committed to suppressing the Dutch revolts, it did also set in place a potential Catholic invasion force less than two hundred miles from London. Additionally the army presence tested Elizabeth's commitment to the Dutch Calvinists. Elizabeth had seized Philip's treasure ships in December 1568 when they had sought shelter from storms. She 'borrowed' their bullion that was to pay Alva's troops; he retaliated by seizing English merchants and their property, causing trade embargoes across the channel.<sup>1,3</sup> The discovery by William Cecil of the Ridolfi plot to land six thousand Spaniards at Harwich in order to depose Elizabeth and enthrone Mary, Queen of the Scots further left little doubt of the extent of Spanish ambition to subdue England, one way or another. In August 1572, the Massacre of the St. Bartholomew occurred with the death of three thousand Huguenots in Paris and a further ten thousand in provincial France.<sup>1,4</sup> This slaughter placed Elizabeth in the difficult situation of how she could best preserve her Protestant kingdom. Elizabeth was faced with a Spanish monarch and a Spanish military force in the Netherlands under the Duke of Alva who appeared to be invincible as his forces in 1584 had command of fifteen of the seventeen provinces of the Netherlands.

Elizabeth and her Privy Council faced enormous problems in determining the correct policy to adopt in regard to the Netherlands whose fate had reached a crisis point in 1583. It became increasingly clear that Philip was determined to extend his territory to England by invasion using forces launched from Spain and from the Netherlands. He had been actively drawing up plans for an invasion from 29 December 1585; his underlying information told him that English forces were weak and unprepared. He was also informed

that only twelve English counties were Protestant and that the old nobility would rally to him, as would the supporters of Mary Queen of Scots.

The objective of an armada would be to conquer England and thus ensure the reconquest of the Netherlands.<sup>1.5</sup> It was now not a question if the invasion would occur but when? One of the worst fears of the English Protestants had become true as Alva had destroyed Antwerp as a trading centre by sea blockade and appeared likely to occupy the city with the effect that the sale of English coarse wool to the weavers of Europe would be disrupted. Elizabeth would face serious economic problems if Antwerp were lost as this would cut off England's main overseas revenue stream. Elizabeth's money problems were always severe, in part inherited from the costly military campaigns under Henry the Eighth and Mary.

In the darkest hours of the revolt of the Netherlands, the remaining viable military provinces left to oppose the Spanish were Holland and Zeeland held together by Prince William of Nassau and Prince of Orange. In 1583, William turned to Protestant countries for aid and in particular to Elizabeth who was again offered the sovereign's role in the Netherlands on 12 May 1585. She refused this offer as she had done previously in 1576. She had previously committed funds to William to assist his struggle, by giving 1,000,000 florins during 1578-79. Some of this sum was provided not in cash but as alum, a material used for dye fixing and also in textile manufacture and vital to Antwerp's wool industry.<sup>1.3</sup> She had also sent a few hundred soldiers to the Netherlands in 1572 but these were soon recalled.<sup>1.7</sup> Certainly these actions caused her policy of defensive neutrality to be stretched to their limit.

In October 1584 the Privy Council decided that military aid would need to be offered to the Dutch. Elizabeth received a delegation from the States-General and the Treaty of Nonsuch was drawn up and signed on 20 August 1585, committing England to deliver an army for the defence of the United Provinces. Three months previously on 10 July, William, the leader of the Dutch Revolt, had been assassinated causing panic among the English politicians that Elizabeth may suffer a similar fate.<sup>1.8</sup> As part of the treaty,



England would provide a governor-general who was to be advised by a new Dutch Council of State. He was to direct the war and coordinate government of the Netherlands. In addition, England would pay 600,000 florins a year towards the cost of the war. Elizabeth, in keeping with her nature, did not undertake this commitment lightly. She required guarantees from the Dutch who were to surrender Flushing, Rammekens and Brill as sureties for money to be spent by her; these towns were termed 'the cautionary towns'.<sup>1.9</sup> The choice of these towns was to put in place an effective blockade of the river Schelde and hence the gateway to Antwerp.

The agreement was to provide an English army with a field force of 5,000 men, 1,000 cavalry and 1,150 men for garrison duties in Flushing and Brill, in all 7,150 men. This undertaking effectively placed England at war with Spain.

The exact numbers of men in the first levy are lost.<sup>1.10</sup> Parker however records that 6,350 men were to be raised.<sup>1.11</sup> A distinction into infantry and pioneers is not recorded. Robert Dudley, the Earl of Leicester, was appointed to be the governor-general and he commenced to raise the initial military force in the traditional feudal way by levy of the men mostly initially from his own estates. A force of 4,100 men was at Flushing at the mouth of the river Schelde on 14 September, but too late to save Antwerp, which surrendered to the Spanish on 17 August. The force had been increased to 8,000 by December 1585.<sup>1.12</sup> In the last week of August 1585, the professional soldier and English 'volunteer' captain, Colonel John Norreys, had a force of 2,000 at Middelburg, the capital city of Zeeland and close to Flushing.<sup>1.13</sup> Sir Philip Sidney was to be the governor of Flushing and commander of the garrison. Sir Thomas Cecil was to be in command of Brill.<sup>1.14</sup>

The need for widespread levying of men raised considerable objections within England. There was a need for an Act of the Privy Council in February 1586 to deal with the recusants, who objected to conscription. The Act remarked on 'Yeomen and others of strong and able bodies, by whose evil example and obstinacies divers of the common and inferior sort are daily, led and perverted'. Following this Act, it was suggested that one group of 200

recusants should be sent to Leicester in the Low Countries to be employed as pioneers.<sup>1.15</sup> The wording suggests that the compulsion to go to the Netherlands could be regarded as a punishment.

Following the example set from the time of Henry the Eighth in earlier campaigns the military force would be accompanied by a medical contingent. The guidelines laid down during the Marian era suggested that the appropriate medical establishment be considered to be in the order of 1 medical practitioner to each band of 100 men.<sup>1.16</sup> The requirement for medical practitioners compatible with this ratio would be seventy-five medical practitioners recruited for army service for the Flanders campaign. The Barber-Surgeons Company was expected to provide practitioners under the understanding made by the receiving of its charter from King Henry the Eighth.

Prior to 1585, Tudor England had been engaged in relatively small-scale military campaigns against the Scots, the French and the periodic Irish rebellions. The involvement in war in the Netherlands was to become an ongoing 'black hole' for England, testing her manpower resources to be able to continue to supply her forces with men and materials. It would also highlight the inadequacies of the recruiting systems to muster men to defend the realm as well as the poor leadership and the inadequacies of her military advisors.

Elizabeth and England were forced to undertake military action to give forward protection against invasion, to aid the only effective anti-Spanish fighting force in the Netherlands, and to endeavor to maintain trade links and to defend Protestantism.

## REFERENCES

- <sup>1.1</sup> Guy, John. *Tudor England*, (Oxford University Press, Oxford, 1988), p. 204
- <sup>1.2</sup> Parker, Geoffrey. *The Dutch Revolt*, (Penguin Books, London, 1977). p.216
- <sup>1.3</sup> Guy, John. *Tudor England*, (Oxford University Press, Oxford, 1988), p.276
- <sup>1.4</sup> Ibid, p. 276
- <sup>1.5</sup> Ibid, p.338-339
- <sup>1.6</sup> Parker, Geoffrey. *The Dutch Revolt*, (Penguin Books, London, 1977).p.216
- <sup>1.7</sup> Ibid, p.216
- <sup>1.8</sup> Guy, John. *Tudor England*, (Oxford University Press, Oxford, 1988), p.286
- <sup>1.9</sup> *Calendar of State Papers*. (Foreign Series, Elizabeth), Preface. Ed. S.C.Lomas, 1901.p.6



- 1.10 Cruickshank, C. G. *Elizabeth's Army*, (Oxford University Press, London, 1946). p.1
- 1.11 Parker, Geoffrey. *The Dutch Revolt*, (Penguin Books, London, 1977). p.217
- 1.12 Ibid, p.218.
- 1.13 Guy, John. *Tudor England*, (Oxford University Press, 1988), P.287
- 1.14 *Calendar of State Papers*. (Foreign Series, Elizabeth) Preface. Ed S. C. Lomas, 1901, P.41.
- 1.15 *Acts of The Privy Council*, Preface, New Series, (H.M.Stationary Office, London, 1897), 14:14.
- 1.16 Cruickshank, C. G. *Elizabeth's Army*, (Oxford University Press, London, 1946). p.118