THE HUMMEL BONNET

An investigation of its production, design and significance in military uniform

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ABSTRACT

The role of experiment has long been established as an effective means through which to explore past aspects of material culture, architecture and site formation processes (Coles 1979, Mathieu 2001 etc.). Items of dress have not routinely been incorporated in experimental projects. This investigation explored the utility of archaeological methods for gaining insight into how aspects of the uniformed body was constructed in Victorian Britain, focusing specifically on the production, design and significance in military uniform of the hummel bonnet. The work included a detailed review of available sources of evidence especially Calotypes, detailed study of extant artefact evidence and an experimental reconstruction of a hummel bonnet, using recognised experimental archaeological theory.

In undertaking this task, the techniques and approaches used are typical of experimental archaeology and analysis and examination of historical costume and are put to the test in order to evaluate their utility for this kind of research. The research considered material and method of construction aiming to adopt as near an accurate reconstruction as possible.

Findings of the research offer insight into experimental techniques and how these could be developed to further understanding of historical artefacts and makes comment about the role and value of re-enactment as a presentation of 'history' and the risks this may pose.

CONTENTS

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LIST OF ILLUSTRATIONS

Fig. 6:5 The Ruddle Pit, from Walker's Costumes of Yorkshire

Fig. 6:6 Edward Hull (1830), Military Costume, Bugler of The Seventeenth. Undress.

Fig. 6:7 Knitted Bonnet, Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174

Fig. 6:8 Roger Fenton, Private of the 28th (North Gloucestershire) Regiment of Foot in full marching order, 1855, National Army Museum, London. (Acc. No. NAM. 1964-12-151-6-15)

Fig. 6:9 Roger Fenton (1855), The Remains of the Light Company of the 38th Regiment, 1855, National Army Museum, London. (Acc. No. 1964-12-151-6-18)

Fig. 6:10 Gustav Sohon, sketch Adolphe a Flathead Chief Smithsonian Intuition, Washington

Fig. 6:11 Gustav Sohon,sketch Iroquois Guide Aeneas, Smithsonian Intuition, Washington

Fig. 6:12 Cornelius Krieghoff, Winter Camping Scene c.1850s-1860s Watercolour sketch, Copy from the Dick Institute ,Killmarnock.

Fig. 6:13 Image by Father Nicolas Point. Probably from Montana or Idaho c. 1840s. Image from the Dick Institute, Killmarnock.

Fiq. 6:14 H.M.The Queen presents new colours to the Royal Regiment of Scotland, Edinburgh, 2nd July 2010. http://www.army.mod.uk/infantry/regiments/SCOTS.aspx

Fig. 7:1 Machine knitted Glengarry produced by Robert Mackie & Co., c..2010. Regimental Museum of the Argyll and Sutherland Highlanders, Sterling.

Fig. 7:2 Hand knitted Glengarry, c.1854, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling.

Fig 7:3 Feather Bonnet and Hackle c 1854, detail, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1

Fig. 9:8 Close up of the Sergeant from Sergeant and Private of the 92nd Gordon Highlanders (Ref: PGP HA 2661, Scottish National Portrait Gallery)

Fig. 9:9 The reconstruction from a similar angle to figure 9:8

Fig. 9:10 Close up the Sergeant from 92nd Gordon Highlanders and their wives at Edinburgh Castle, (Ref. M. 1937.119.11, National Museums of Scotland)

Fig 9:11 The reconstruction from a similar angle to figure 9:10

Fig 9:12 Soldier's bonnet from 92nd Gordon Highlanders and their wives at Edinburgh Castle, (Ref. M. 1937.119.11 National Museums of Scotland)

Fig. 9:13 The reconstruction from a similar angle to figure 9:12

Fig. 9:14 Soldiers bonnet from Soldiers with child sat on gun (Ref: M. 1953.538.2, National Museums of Scotland)

Fig.9:15 The reconstructed bonnet from a similar angle to figure 9:14.

Fig. 9:16 92nd Gordon Highlanders and their wives at Edinburgh Castle, detail, (Ref. M. 1937.119.11, National Museums of Scotland)

Fig. 9:17 Heath, W . Drill. Detail Published April 1829 by McLean 26 Haymarket.

Fig 9:18 Detail of left hand soldier on wall from 92nd Gordon Highlanders and their wives at Edinburgh Castle,(N.M.S. Ref. M. 1937.119.11).

Fig 9:19 The reconstructed bonnet.

Fig 9:20 Detail of soldier second from left on wall from 92nd Gordon Highlanders and their wives at Edinburgh Castle,(N.M.S. Ref. M. 1937.119.11).

Fig 9:21 The reconstructed bonnet.

Fig. 9:22 Detail of soldier third from left on wall from 92nd Gordon Highlanders and their wives at Edinburgh Castle,(N.M.S. Ref. M. 1937.119.11).

Fig.9:23 The reconstructed bonnet.

Fig. 9:24 Detail of soldier forth from left on wall from 92nd Gordon Highlanders and their wives at Edinburgh Castle,(N.M.S. Ref. M. 1937.119.11).

Fig. 9:25 The reconstructed bonnet.

Fig. 9:26 Detail of soldier sixth from left on wall from 92nd Gordon Highlanders and their wives at Edinburgh Castle,(N.M.S. Ref. M. 1937.119.11).

Fig. 9:27 The reconstructed bonnet.

Fig. 9:27 Label from an R.A.F. Beret, c. 2010, Alexander Tovey collection

Fig. 10:1 *Feather Bonnet and Hackle (c.1854)*, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1 c.1854

Fig. 10:2 *Glengarry*, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.0007a Date c.1854

Fig. 10:3 *A Pillbox Cap, 2nd Royal North British Dragoons (Scots Greys).*Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle. Acc. No. 21215 Date c.1854

Fig 10:4 Detail from *Sergeant and Private of the 92nd Gordon Highl*anders. Scottish National Photography Collection Ref. PGP HA 2661

Fig. 10:5 Author's image, Gordon Highlanders Re-enactors, Waterloo, 2010.

Fig. 10:6 Gordon Highlanders, living history event, Archeon, 2012

Fig 10:7 James Howe, Details from *The 2nd Dragoons in bivouac during the Waterloo campaign 1815.* Scottish National War Memorial Museum.

Fig. 10:8 The Daily Telegraph, 26-10-12, article on the popularity of the beret in France

Fig. 10:9 Che Guevara, Time Magazine, 8th August 1960

Chapter 1

INTRODUCTION

Clothing is a social artefact and a form of communication (Joseph 1986), in this context military uniform, as a form of clothing, also relates to 'control' and 'organisation' in recognition that uniform has symbolic significance that extends beyond the simple expedient of production. Uniform is defined in the Oxford English Dictionary (OED online 2012) as '…the distinctive clothing worn by members of the same organization or body…'. Key to this definition is the word *distinctive*; factors such as finance, social status, gender, climate, tradition, expediency, technology and personal preference can all impact on the uniform appearance, creating a wide-range of visible results. An example of this can be found in the Anglo-Zulu War of 1879, where in order to distinguish between Zulu Warriors and Britain's native allies, the allies were provided with a '..red rag tied about the head.' (Morris 1993 p.309). These natives were also provided with one firearm to every ten men to supplement their own '…assegais, knobkerries and shields' (Morris 1993, p.310). In the terms of the Geneva Convention (1949) aspects of a belligerent's appearance have been codified as '…having a fixed distinctive signs recognizable at a distance;' and to be '…carrying arms openly;'. Uniform, therefore, can be considered to be clothing of social and political significance.

The history of military dress has attracted wide ranging interest, ranging from academic historians addressing the development and social significance of uniform through to re-enactment groups, who have an interest in the recreation of uniform to add colour to re-enactments undertaken under the banner of 'living history'. An early student of military dress was Luard (reprint 1971) with his 1852 study of military dress to support his proposed improvements to the dress of the British Army. Typical of work produced by recent historians are those of Barthorpe (1974), Mollo (1973) and Carmen (1957), with their extensive and critical approach to contemporary evidence. Whilst artefacts can be investigated as 'objects' this study seeks to extend our understanding of them by considering the relationships that emerge amongst objects and people. The study of military material culture, specifically dress, presents an important and very relevant opportunity to examine this intimate rapport. The 'social lives' of objects sometimes understood through the idea of biography (Appadurai 1988), allow us to '…embody a diversity…' and '…perhaps a unique intensity of individual, social and cultural ideas and experiences'.(Cornish and Saunders 2008).

The intimate relationship developed with dress, means that not only can the interaction between the wearer and the garment be examined, but also the relationship between producer, wearer, and the political and social values of wider society. Despite being a prescribed, regulated and mass produced article of dress a personal relationship between the object and society must always be thought to exist. As Miller suggests, the relationship between the textile historian and the cultural student should be a close one. A liaison between '…the warp of materiality and the weft of society,…' (Miller 2005, p.17) should be embraced. This is especially pertinent to military uniform where we can expect to reveal the interweaving of social values and dress as the state goes about materialising its power through agents of the 'armed' forces.

The military should not be understood simply as an institution intent on war. Bellicosity may be considered as its *raison d'etre* but the marshalling of a 'uniformed' and ordered 'force' is the projection of a connected number of institutions that seek to maintain and reinforce their own power through predominantly and relatively peaceful pursuits. Examining collections in our regimental, local authority and national museum's collections shows that there is little approaching a comprehensive record of the army's material culture prior to the First World War, yet this was a period when the consolidation of state power becomes a very critical concern. It is only with a major national conflict that this is considered a subject worthy of a comprehensive record. It is in 1917 that perhaps the most pivotal attempt was made to record the material culture of the First World War by the specifically formed National War Museum Committee. This was to form the basis of what was to become the Imperial War Museum. This approach to creating an extensive record of the war's material culture whist it was in use may be considered unique and certainly far-sighted. Through this organisation's approach to making '..the Museum as comprehensive as possible,…' (Cornish 2004, p .37) in its approach, to not only records, images, literature, etc., but specifically material culture, a new standard was established. By giving value to the mundane it may be considered that it acknowledged a failing by previous generations to establish anything resembling a comprehensive record of the material culture of the crown's armed forces.

The subject under study clearly falls well before this acknowledgement of an *ad hoc* approach to preserving our heritage and therefore supports the necessity for this approach to reconstructing and understanding the gaps in our records. Even with the approach taken by the Imperial War Museum it may be appropriate to apply the theory expounded in this thesis to make reconstructions to support their knowledge base.

This work proffers the use of experimental archaeological principles to enlighten the gaps in our understanding of the past. Of note is the work of Saunders, an advocate off 'Conflict Archaeology', In his 2010 work, *Killing Time: Archaeology and the First World War* he

endeavors to help us think more deeply about material culture and apply this understanding to the study conflict, and its participants. This is an approach that combines archaeology, anthropology and other disciplinary methods with the aim of enabling a more comprehensive understanding of the context and our cultural inheritance and demonstrates an innovative use of accepted principles to an area of research otherwise rarely considered.

As such the documentation and study of military uniform occupies an interesting intellectual space where academic study sits alongside amateur research with both serving to inform interpretations that are frequently 'consumed' by the public often within the context of heritage tourism be that the museum case or the reanimated battlefield. It is perhaps these latter groups who have expanded most effort in the translation of various sources of evidence and are most prolific and are the most visible in our society. Despite the intellectual proximity of academic and re-enactment groups there is a surprising absence of meaningful dialogue between them perhaps resulting in a lack of the careful scrutiny typical of academic historical and archaeological practice. This is neither a trivial matter nor one that should be dismissed as academic pedantry aimed at spoiling the 'fun' of re-enactment groups. The central role re-enactment groups play in many heritage interpretation contexts means that such groups carry with them a responsibility equal to that of the historian or archaeologist. Whilst their version of 'history' is not inscribed on the written page it does serve to inform the public about the social and political conditions surrounding the emergence of the present. Re-enactment, whilst not inscribed in text does nonetheless endure. Visual images, recordings and a host of heritage interpretation devices serve to promote such 'living history' events in the public mind and as such re-enactors should acknowledge that they share the responsibilities of the historian.

Without adequate academic research many public presentations of reconstructions or re-enactments can be extremely misleading, not just in terms of the garments worn but even in the way such artefacts are represented on the body through their wearing and use. Again, the uniformed body, is and no doubt was, a political entity and, whilst its message is perhaps more subtle than perhaps concrete historical records of legislation, it serves to communicate a specific set of values surrounding the most potent 'diplomatic' instrument of state - *the armed force.* The importance of studying the uniformed body therefore most likely resides in its subtlety. Whilst political tracts and historic documentation are resources that can be critiqued according to accepted historical method, the material culture of the uniformed body defies such simple scrutiny, as such its meaning permeates our understandings at a more subliminal level and therefore represents not only a fascinating subject of study but one which directly addresses the means by which the state goes about materialising its power

through force. It is this materialisation of power that is not open to normal historical critique and therefore demands that an alternative method, archaeology, *the study of material remains*, is used to open this subject to wider analysis.

This potentially misleading representation of military uniform not only demonstrates itself by minor details or technicalities such as incorrect use of materials or manufacturing techniques, but through modern body shapes, habits and attitudes to dress. All groups have developed habits, skills, styles of appearance and behaviour specific to their environment and tradition; as such the military is no exception.

Bourdieu (1977) examines and reflects upon these elements. Based on his field work with the people of Kabylia (French North Africa) Bourdieu's work examines the basis of his relationship between the theory and practice of society. From the original French title 'Esquisse d'une th'eorie de la pratique.' (Bourdieu 1977, p.vii) it may be interpreted that it is a theoretical outline of The Practical. The culture viewed or the signals sent (the dressed body) and view of a foreign landscape, or the message received by the viewer (the perception by others) is examined.

In his chapter on the Structures of the habitus, Bourdieu identifies the habitus as being codified into '…objectively "regulated" and "regular" without in anyway being the product of obedience to rules,…' (Bourdieu 1977,p.72). This has direct parallels with the uniformity and development of the hummel bonnet from its early forms. Through the study of the hummel bonnet (see chapter 6), its development, its use by the Scottish clans, codification by the military, its adoption by other cultures and continuing popularity is examined. Through using the '…body as a geometer:..' (Bourdieu 1977, p.114) it is possible to evaluate the characteristics of the bonnet in relation to the human body.

Accepting that the study of the uniformed body is more than the study of the uniform is to accept that there exists a relationship between the body and dress and represents the starting assumption of this study. This is problematical as it suggests that such studies must address not just the remains of material culture but also consider the physiology of individuals who once (and do) inhabit such uniform. Finding a modern person with a Victorian body shape and composition is certainly possible, but a general comparison between a modern hobby re-enactor and a Victorian soldier is perhaps not a fruitful mode of investigation yet remains an important consideration. In its most simplistic form, a modern individual is far more likely to be overweight, well nourished, less accustomed to the certain modes of existence (often demanding) and above all has a choice in his reason for wearing

the Queen's uniform which was likely to be very different to those from times past. This is a point upon which it is necessary to be clear. Whilst uniform can be mistaken for being an assemblage of garments, "an outfit", in truth the real object of study is the "uniformed body". It is in other words, a study of the relationship that exists between the wearer (the body) and the worn (the garment). As such, the study of military dress becomes the study of the relationship between the human agent and a specific set of material culture and the wider yet specific social conditions within which such emerge. Barrett (1994 p.95) illustrates this by comparing clothing to architecture in the way it '…helps to project and to stage the presence of the agent.'. In recognising this, the common ground is identified between the study of military dress and artefacts which more commonly occupy the attention of the archaeologist. It is unsurprising that this thesis crosses disciplinary boundaries - costume, textiles, archaeology, material culture studies and military history. The broad theme for this thesis is the reconstruction of military dress using the rigour of experimental archaeological techniques. The thesis develops through several phases of examining various sources of evidence and culminates in the reconstruction of an item of military dress. In undertaking this task the techniques and approaches used are typical of experimental archaeology and analysis and examination of historical costume and are put to the test in order to evaluate their utility for this kind of research.

It is a central proposition of this thesis that little has been proven or even demonstrated of our understanding of the specific area of period costume under study. At best we are exposed to badly researched examples and worse we uncritically consume deeply misleading representations of past dress in part because we have not considered the theoretical implications and demands of approaching the subject.

Martial dress and uniform has undergone significant transformation since the earliest evidence for collective dress witnessed perhaps as early as the Bronze Age. In his work on uniform of Aegean warriors from the late Bronze Age, Papadopoulos (2010) concludes that '..a specific dress code…' (p.653) exists for the representation of warriors through the use of weapons, decorative armour, and shield decoration. He also identifies problems with differentiating the warrior character from the hunter based on the similarity of the use of '…helmets and greaves…'(p.650). Perhaps the best or most popular example of this early uniformity and regularity was that of the Roman Legions. Although there is little evidence to suggest that there was any difference between civil and military clothing except perhaps in its quality, it was '…military equipment which visually proclaimed his identity.' (Bishop & Coulston, 2006 p.253). They (Bishop & Coulston) identify similarities within the individuals seen on Trajan's Column and even dispute whether there was any '..real difference between

legionary and auxiliary equipment at all'. Robinson (1975) provides a comprehensive study of Roman Imperial Armour which clearly illustrates that the armour used by the Roman Legions, though not identical, does follow several clear and very similar forms. This is typified by the extensive use of such elements as the Gallic helmet and the Lorica Segmentata. With tools such as legion eagles, oaths of loyalty, consistency of legion names, their regularity of arms, armour and clothing produced an identity that has similar characteristics to the modern army. Vegetius (Le Bohec, 2001, p.46) supports this with his description of regular posts within each legion. These posts range from '…eagle bearers …' to a wide range of specialists and classes of soldier, clearly illustrating a wealth of martial grades comparable with the modern army.

Whilst uniforms may serve to standardise appearance they can also form part of a distinct presence which may indicate authority, status, allegiance and in formal use may even reference political or calendric events. As such military dress is a potent historical resource, which can contribute to our understanding of social, political and economic circumstances. Examples of early (pre)historic martial dress are restricted to ceramic iconography, wall paintings or rock art. These early depictions include rock drawings from the Val Calmonica in the central alps with their rudimentary images such as the '"Great Rock" of Naquane'. These drawing depict warriors with their '…weapons and tools represented...' including '… shields, helmets, swords, lances, and axes.' (Anati, 2008, p.34) Ceramic art such as the 'Warrior Vase' from Mycenae depicts stylised soldiers carrying spears and shields.

Fig. 1:1, *The Warrior Vase*, National Archaeological Museum, Athens.

For more recent examples of military uniform, evidence can be gleaned from several sources including artistic representations, photographs, literary sources, but still there is

rarely anything approaching a comprehensive collection of extent uniforms especially with organic components. This is particularly evident for the common soldier and presents a significant problem for the historian and archaeologists alike as the primary artefact rarely survives in a condition suitable for detailed scrutiny. As such interpretation is often dependent on particular techniques of examination, personal knowledge of materials and historic fabrication techniques and therefore conclusions reached often remain contentious. The challenge then to any investigation into military uniform is how to develop understandings based on empirical research whilst demonstrating precisely how specific methodologies have been employed along with how observations were made and interpretations reached.

Whilst documentary sources offer useful insights there are obvious problems with both image and text which need to be explored, of course this is not to suggest that the artefacts themselves are free from interpretative challenges. Any observation of the subjects requires a critical and theoretically informed approach to the evidence, be it primary material evidence, the artefacts, or representations of them. As Moreland explains there can be a '..blurring of distinction between Word and Image.' (Moreland 2001, p. 48). Substitution, or supplementation of the written message by a perceived naturalistic image should not be taken in isolation, it is in reality simply being used to send a message. As with any message the author is attempting to communicate an agenda and technical information about artefacts may be incidental. With this in mind, we may consider Trajan's Column with its clear and lifelike representation of the Roman Army, to be simply a propaganda tool by the Emperor Trajan. Students of Roman armour could do little but speculate as to the form and function of the body armour depicted. It was with the discovery of the Corbridge Hoard in 1964 that units of 'lorica segmentata' armour were found, and thus enabling experts to understand how this type of armour should be reconstructed.

Fig. 1:2, *Cast of Trajan's Column*, Victoria and Albert Museum, London. Author's image.

This example is telling in that it reveals the contingent relationship between evidence and knowledge. As a significant point it brings us to a major thread of this thesis, to evaluate and explore the role of archaeological approaches to the study of military uniform. Artefacts are normally recorded in minute detail, for instance taking note of the surface scuff marks on pottery, the precise form of metal objects, the subtle retouching of a flint blade. It is with this level of detail which allows the archaeologist to reveal individual strategies enacted on objects and as such permit the discussion of "traditions" of production, use and disposal. This use by Archaeologists of fabric analysis to classify pottery (Orton et al,1994) has direct parallels when classifying aspects of nineteenth century dress. Classifications such as colour and feel are common when describing any fabric, as are the methods use to record and communicate the qualities and characteristics of an artefact. These methods of recording artefacts (photography, scale drawing, etc.) allow information to be disseminated and comparisons made.

It is then the aim of this thesis to explore the use of archaeological methods to examine this subject. Much has been published on the appearance, function and nature of the period uniform under study, but little has been subjected to the rigours of academic scrutiny, and as such is unproven.

Based on detailed observation and recording it is intended to simulate the original processes or stages used to produce the garment and present the image of a (partially) uniformed

body. Stages include the procurement of materials, their processing, their transformation to object, fit, use and inspection.

Principles of Experimental Archaeology will be used to guide a campaign of replication; it is intended to create a visually correct and functioning replica of a hummel bonnet using a structured designed approach. This replica will be produced using a process deduced from the investigation of diverse strands of evidence including visual imagery and material culture. This functioning replica will enable comparisons to be made with extant objects and images, to evaluate its value as a visual and functioning replica.

As experimental archaeology '…employs a number of different methods, techniques, analyses, and approaches within the context of a controllable..' environment (Mathieu, 2002, p.1), it is necessary to identify and modify appropriate areas of experimental archaeology in order to answer the research question. A range of analytical processes are employed to identify the composition of materials involved in the reconstruction.

The Victorian uniform, although generally perceived as being well-documented and understood, is in many aspects unknown or potentially misinterpreted. The period of study is less than 170 years old and by archaeological standards modern, but specific information, be it extant objects, images, or written accounts fail to comprehensively understand vast elements of the appearance of military uniform of this period. This is particularly relevant to that of the dress of the common soldier, who 'For two hundred years they have borne Wellington's "scum of the earth" assessment…' (Cross, 2005, p.327). It is to this individual that this study turns so as to examine the dress of the Victorian soldier, of '… what they are and how they fit into an historic context.' (Gale, 2007, p.iv).

In summary then this thesis aims to explore the utility of archaeological methods for gaining insight into how aspects of the uniformed body was constructed in Victorian Britain. The following objectives have been identified in order to achieve this aim.

- A detailed review of all sources of evidence especially Calotypes;
- A detailed study of surviving artefact evidence;
- An experimental reconstruction of an item of military dress, in this case the hummel bonnet, using recognised experimental archaeological theory.

In achieving these objectives it should be possible to characterise the material and technical conditions that surround those who sought to achieve a specific 'look' as such they will add information to the body of knowledge of how specific traditions of practice and craft skill were

established. In taking an embodied approach to dress it is hoped that a practical insight will be gained into both production and use of a garment with a specific focus on the opportunities to discover the sensual and inherent qualities of the materials required and utilised in period dress.

Chapter 2

USING EXPERIMENT IN THE STUDY OF HISTORIC DRESS

Introduction

Archaeology is the study of material remains of past societies, as such, it is perhaps the most material-based of all the humanities whilst simultaneously employing investigative techniques borrowed from the physical sciences (Pollard and Heron, 1996).

The material basis to the discipline has meant that archaeologists have developed both elaborate methods and techniques for the detailed study of diverse artefacts ranging from ceramic sherds to fragments of corroded metals. The materials of routine archaeological investigation tend to be the recalcitrant materials which resist degradation and corrosion, namely inorganic materials. It is for this reason that organic materials rarely survive and whilst it is likely that they were amongst the most common of materials for much of human history they occupy a disproportionately small degree of archaeological attention because of their rare preservation (Hurcombe, 2008, p.84).

It is perhaps for this reason that archaeology does not have a comparably extensive range of techniques for the study of organic materials when compared to those that have been developed for the inorganic. Equally, experimental approaches to material culture and craft, with their emphasis on empirical data, have tended towards focussing on the more tangible remains of the archaeological record. As a result many of the guidelines, rules and principles for experimental practice have been developed with inorganic materials in mind (i.e. Coles 1973, 1979). This is not to suggest that experiment has nothing to offer the study of perishable material culture (Hurcombe 2007, 2008, Harris 2010), rather the contrary. It is the very absence of perishable materials in the archaeological record which makes experimental approaches, and the reconstructions they produce, valuable as a means to investigate this important aspect of the archaeological record, both in prehistoric and the historic periods. Indeed, it is argued here that the general archaeological processes of investigation, analysis, and reconstruction offer a potentially novel way of exploring aspects of organic material culture and specifically that of historic military dress.

Whereas the study of inorganic materials has the advantage of an extensive material record, the study of inorganic objects often relies on restricted examples frequently preserved by chance; or more often secondary sources of evidence such as impressions left in ceramics or depictions in varied media ranging from wall paintings to historic photographs. In light of

the evidential basis of such studies being 'removed' from primary material it is even more important to both establish and explicitly state the methodology and 'principles' adopted for their study.

Experimental Archaeology: principles, guidelines and rules

The reconstruction of archaeological finds as part of experimental archaeology has a long and well established history (Mathieu, 2002). Whilst the sense of a distinct sub-discipline aligned with methodological development of so-called "New Archaeology" (Clarke, 1973) emerged in the early 1970s, reconstruction projects which aimed to better understand material and process have been undertaken for a considerable time. For instance, Cushing was experimenting with early metallurgy at the turn of the 20th century (Cushing, 1894) whilst antiquarians have a long tradition of reconstructing or restoring megalithic monuments (Pitts, 1990).

Arguably the most significant development of experimental practices in archaeology was the close alignment that developed between experimental approaches and archaeology in the 1970's as part of archaeology seeking to establish itself as a robust scientific discipline (Clarke, 1973). The idea of experiment carried with it a sense of scientific rigour, it suggested that archaeology founded knowledge on the basis of hypothesis testing (Trigger, 1989) and, critically, that such processes of knowledge creation could be repeated. To a large extent experimental practice does indeed offer these opportunities to the discipline and as such it stands in contrast to the more art-historical (culture-historical) approaches taken by many traditional archaeologists at the time. It was at this time that several prominent experimental archaeologists, namely John Coles and Peter Reynolds, began to formulate more structured approaches and methods to guide experimental practice (Reynolds 1996, Coles 1973, 1979). This is perhaps best seen in Coles' so-called "Rules of the Game". Both Reynolds and Coles adopted a firmly empirical perspective and emphasised the need to adopt a rigorous scientific approach that mirrored laboratory practice in the physical sciences. Whilst laudable for aspiring to the development of a rigorous method, Coles' rules revealed a paradox at the heart of experimental practice especially when associated with craft practice (Doonan, 2012).

Experimental archaeology has most recently been developed with the aim of bringing objectivity to reconstruction practices. However, at the heart of craft production resides a skilled human agent (Dobres, 2000). It is the intimate association of the skilled practitioner in craft activities that defies such activities being scrutinised effectively from a purely objective position. Acknowledging this paradox is to accept that that the study of human

craft cannot meaningfully be studied from a solely objective position. This has significant implications for how we approach such studies, and whilst much of the guidance provided by Coles and Reynolds is useful for informing experimental studies it is not reasonable to adhere to these rules totally.

Despite these apparent contradictions experimental studies have continued to develop whilst ignoring this issue. Many campaigns of experiment have sought to replace human action with mechanical apparatus, in the hope of avoiding this issue but such moves are to miss the point as the experimenter still plays crucial roles even if they are physically marginalised by mechanics. Whilst experimentation with organic material culture has its own particular issues (see above), the issues of subjectivity and the relevance of the engaged body become particularly relevant when we are dealing with aspects of dress and costume. For studies such as the one reported here it is then even more pertinent to consider an approach to how the dressed body can be scrutinised effectively in experimental practice. This is a significant point as to ignore it is to avoid the more salient aspect of dress, that is, that it is produced with the intention of being worn on the body. As such the relationship between this category of material culture and the body is a most intimate one. Whilst archaeologists have developed approaches to understanding the relationship between the body and architecture, notably through theories of inhabitation (Barrett, 1994), there have been few explicit attempts to theorise the dressed body from an experimental perspective. Whilst clothing and architecture may first appear very different subjects, they can in fact be understood to share common aspects which provide an opportunity for similar theoretical approaches. A central aspect of inhabitation theory (Barrett, 1999, 2001) is an understanding of how architecture can both facilitate and constrain specific practices. It exists as a resource that can be drawn upon to emphasise certain bodies at the expense of others in particular spaces. Whilst the power of architectural space is well recognised, an understanding of dress in this sense is perhaps not as developed. Like architecture, clothing or dress can both facilitate and constrain specific bodily practices; certain dress types lend themselves to the adoption of certain bodily postures. Likewise, dress can serve to emphasise certain bodies, or bodily parts, at the expense of others and as such dress of any kind (including a lack of it!) serves to create a field of discourse where power and influence is open to negotiation amongst a group. Dress then can be conceptualised along similar lines as architecture: it is almost to say that dress is like a personal and intimate architecture that sits in contact with the body and constrains and facilitates in a similar manner. It is from this perspective that the outcome of experimental practices concerning the hummel bonnet, are scrutinised in the latter phases of analysis. Clearly, such undertakings demand some aspect of control and method and it is with these concerns in mind that the following section seeks

to understand the broadening remit of experimental archaeology and to develop a set of guiding principles that inform this study and may perhaps be of use to others who seek to explore organic aspects of dress evidenced in the archaeological record.

Towards an experimental approach to items of historic dress

The last 40 years has seen a tradition of experimental archaeology emerge from New Archaeology with proponents advocating rigorous criteria and method for experimental studies. A feature of such guidance has been to emphasise the importance of repeatability and experimental design that excludes human 'interference' (Reynolds, 1999, Coles 1979). As argued above guiding criteria which seek to exclude human subjectivity from experiments in skilled practice can only end in contradiction.

Whilst Reynolds (1999) was particularly strident about what constitutes experimental archaeology, Coles (1979) in his 'rules of the game' was eager to delineate a pathway to good experimental practice. Aspects of their approach are integrated into the scheme used in this study (see below).

Both seem to recognise a tension in their need to incorporate appropriate skilled practices whilst also wishing to exclude human subjectivity. Reynolds retreats to a position where only material processes are deemed valid experimental practices, whilst Coles, in a more ambitious and perhaps pragmatic fashion, establishes a series of rules (of the game) that move from a concern with material authenticity to rules which, somewhat oddly appeal to experimenters to fairly assess results and, above all, to be honest.

It is suggested here that rather than making loose appeals for honesty and continuing to work within a contradictory framework, experimental archaeologists should look to reconfigure the theoretical basis of their own practice. Instead of seeing the skilled practitioner as a corrupting influence on the objective validity of experiment, it would be better to understand how the presence of the human agent can be accommodated within a meaningful synthesis. To achieve this is to resolve a crisis in experimental craft studies whilst recovering new kinds of value from experimental practices.

The overtones of this assertion can been seen in numerous examples of recent scholarship concerning experimental practice but perhaps best articulated by Mathieu (2002). Mathieu reviews the development of experimental archaeology and whilst following a similar scheme to that outlined above he develops a typology of practice which effectively categorises and characterises the broad range of practices which today come under the wide umbrella term

'experimental archaeology'. Mathieu sees four types of replication attempts informing experimental practice;

- Object
- Behavioural
- Process
- System

In differentiating between these, he highlights the approaches which are closely allied to such practices and, I would argue, creates a successful scheme for incorporating a diversity of practice in his typology. In Mathieu's scheme object replication incorporates a range of craft practices which would be easily recognisable by many experimental archaeologists who are studying craft practice. Such studies tend to be object-oriented with a particular focus on the material and artefactual properties of craft. These studies lend themselves to scientific enquiry and indeed, the study presented here is closely allied to such approaches, at least in part. For behavioural replication Mathieu includes phenomenological studies (eg. Shanks & Tilley 1994) and in so doing incorporates experimental studies which seek to acknowledge the role of the body in experimental practices. This is a significant expansion of experimental archaeology and its inclusion circumvents significant problems concerning the incorporation of the (dressed) body in experimental analysis. This is not to suggest that phenomenological approaches are not without issue and whilst it is not the aim of this thesis to resolve these, these issues will at least be considered in the discussion.

What follows then is a laying out of the significant principles that have guided the undertaking of the experimental study reported in this thesis. The principles borrow heavily in some instances from the work of early experimenters who wished to emphasise the scientific basis of their study. It also extends to some of the approaches adopted by more recent scholars who have sought to develop methods which make use of phenomenology.

Material Authenticity

In line with Coles it is held that the materials used in any experimental project should be appropriate to the subject being studied. It is important to state that authenticity is something that is established through the investigation of primary evidence. Where such primary evidence no longer exists, as is often the case for inorganic materials other sources should be sought, for instance historical documents, visual media, and parallel artefacts. Issues of production should be fairly considered alongside the material outcome of any

process of replication. Of importance is the need to stress the relationship between any investigation of original material and the choices made in experimentation.

Production Techniques

Again, in line with Coles, it is suggested that the methods of production should be appropriate to those envisaged for the subject studied. This principle therefore mitigates against the use of modern methods that may provide similar material outcomes yet give no insight into the presumed methods used. As with material authenticity the relationship between the choice of production technique and the results of material investigation should be made clear.

Investigative process

Any campaign of experimentation should be informed by an extensive program of material investigation in tandem with other lines of evidence. Likewise this programme of investigation should not end with the initiation of experiment but rather continue for the duration of the study. Experiment may highlight previously unrealised aspects of material and therefore any method should allow for the re-analysis of primary material in light of experimental study. In summary, experiment should not be seen as the endpoint of a linear process of enquiry but rather a stage in a cycle of investigation and critical reflection.

Scale

Coles rightly highlights the issues that arise when experimentation is conducted at scales other than 1:1 and that these should be fairly assessed. For the study of dress and the dressed body it is meaningless to carry out any replication other than at the scale of 1:1. Even so, bodies change and the size, weight and musculature of the contemporary body must be fairly assessed against the understanding of the historic body. Any such assessment should make use of diverse evidence.

Repeatability and Familiarity

The intrinsic material properties of the replicated object should be subjected to repeated analysis to fairly assess material properties. Whilst such repeated analysis is appropriate to establish objective material properties, repeatability is not so relevant to the subjective experience of engaging with the item of dress. For this reason this study develops the idea of familiarity where the continued wearing of dress may give insight into the relationship that is established between the clothes and the body. Such aspects should include how the dress influences posture, comfort, and perception.

Dressing the body

In contrast to more traditional experimental approaches, experimentation on dress must develop a method that accommodates the analysis of the dressed body. The incorporation of such subjective experience must be incorporated in the study. The body should be acknowledged as a varied entity (Sofaer 2006) and this variation must be incorporated in any critical appraisal of experiential practice. Attempts should be made to consider the variation between contemporary and historic physiologies (see above under scale).

The dressing of the body should not be considered straightforward. Single items may be worn in a variety of ways and these should be explored in the process of gaining familiarity with the item of study (see above).

Recording the (dressed) body

The subjective experience of the dressed body is an important aspect of any study of dress items. However, these experiences should be recorded through appropriate methods which might include diaries, critical pieces of reflective writing, or field notes. Experimenters should also include consideration of more structured means of recording using instrumentation which may include photographic or video documentation and this might be undertaken alongside more instrumental means of recording which seek to monitor bodily conditions i.e. temperature and heart rate in the case of insulating items of dress.

In conclusion, it is apparent that experimental archaeology has much potential for the study of historic dress. Indeed, there is clearly common ground whereby many of the established principles established by leading scholars (Coles1973 Reynolds 1999) are directly relevant. However, dress is a particular type of material culture with very specific traits that requires a number of adaptations of existing approaches. Whereas most examples of material culture have recognisable and static form or type, clothing is a form of material culture which endlessly follows the body in a dynamic relationship that sees its form constantly remodelled. Whilst it might be possible, and indeed useful, to objectify clothing to establish types it can only be understood usefully when connected with a wearer. To recognise this is to understand that a meaningful study of dress must include a wearer and as such it is to introduce a challenge to objective experimental studies whilst also accepting the new challenges that arise when including a subjective 'body' into one's analysis.

Whilst there exists the possibility to address these challenges from an abstracted theoretical perspective, this thesis wishes to follow an explicitly material focus. This is not to dismiss the theoretical issues which attend to this issue but rather it is to assert a position that believes the theoretical debate would be better informed once the material consequences

associated with such a study are better understood. From this perspective this thesis can be thought of as a study which seeks to consider and delineate some of the issues that arise when taking an embodied approach to an experimental archaeology of dress. It is not intended to tease the reader with the anticipation of major theoretical insights concerning this matter but more to highlight the realities which are confronted when attempting to adopt such a perspective to dress. What remains the highest priority is the understanding of the material evidence and how this informs our understanding of Victorian military dress. Insights will emerge which will contribute to this important matter, but it is likely that this will remain for others to more fully and completely define.

Chapter 3

THE UNDRESS UNIFORM OF THE GORDON HIGHLANDERS IN 1846

The hummel bonnet, which forms the focus of this study, is part of a distinct and evolving dress culture within the British Army of this period. As such, it is important to place the bonnet within its context both as a component of this type of dress and as part of a changing culture of uniform. Establishing the precise nature of undress uniform for the British Army of this period is difficult to define with any accuracy. This is due to a lack of records, surviving articles of uniform, and an idiosyncratic approach by the different regiments towards undress uniform.

The undress uniform (as worn by the other ranks, or soldiers not of commissioned officer rank) of the Gordon Highlanders in 1846 needs to be defined in order to understand how particular sources of evidence can be appraised. . The terms 'undress' and 'full dress' are used to differentiate types of military dress and may have several variations. Full dress may fall into categories such as heavy marching order, light marching order, guard order, etc. and undress may have categories such as drill order, and walking out dress. These categories of dress are the subject of a more comprehensive study, but the physical properties these types of dress may be reflected upon. If 'full dress' is to be considered, as this was the primary dress used by the army in its raison d'etre (to fight), 'marching order' must be considered as perhaps the most important. The period 1846 was when an infantryman was expected to march to, and fight, at the seat of war with most (if not all) his uniform and equipment. In this order of dress significant demands would be made on the individual and the signals given to the soldier that he was about a serious and challenging task. This order of dress contained all the aspects necessary to facilitate and communicate this task. These aspects included the distinctive articles of uniform with its comprehensive components, equipment to allow him to carry his clothing, food, water and ammunition. Not least of all, his personal weapons. If 'undress' is to be considered, as this was of secondary importance and to be used in many of the more passive or commonplace activities, 'drill order' or walking out dress' can be considered. In these orders the soldier was expected to endure hours of demanding foot and arm's drill in a learning capacity. In 'walking out dress' he was expected to be smart enough to leave (and return to) barracks in his spare time.

The term 'full dress' applies to the uniform and equipment worn for parades such as the castle guard, seen in the calotypes depicting kilted soldiers. It is most recognisable today as the dress worn for ceremonial parades, for example the soldiers on public duties at

Buckingham Palace. Unlike today, the full dress at this period, with only minor alterations, was the same dress the soldier was expected to live and fight in whilst on service. Unlike the undress, the items of full dress were prescribed and highly regulated by the army. These controls were generally organised through a series of 'Circular Memoranda' distributed to regiments through the army headquarters at the Horse Guards building in Whitehall and simply referred to as coming from 'The Horse Guards'. Further to this method of control, a system of 'sealed patterns' were in use. The following extract from a letter by Mrs. G. Brewer (Curator, Department of Uniforms with the National Army Museum, London) gives a concise account of the sealed pattern system (McKay, 2009).

> *'…since the start of the eighteenth century a band of officers (or other responsible persons) has approved the quality and finish of all items of military clothing, it was then sealed with the wax of the Board of Ordnance or other Government seal to be recognised as the standard to be kept by the manufacturers. There is valuable evidence to be seen on these patterns because they also carry the date of approval and obsolescence of each item. Unfortunately, that system has not proved to be infallible. In 1841, all sealed patterns accumulated since the beginning of the eighteenth century, were destroyed in a fire at the Tower of London. No secondary store existed and thus all patterns encompassing Marlborough's campaigns, the Seven Years War, the American War of Independence and the Napoleonic Wars were lost.'*

It is sufficient to say, with the loss of this pivotal archive, most research has to be done through less authoritative and certainly less tangible sources such as illustrations, memoirs, written instructions, etc. Steppler (1989 p.20) states the presence of this sealed pattern archive not only controlled '…quantity of materials…', but also noted the details of the '…cut and ornamentation,' suggesting the Army authorities desire to control the uniformity of the Army.

'Undress', in comparison with full dress, was less regulated and the following attempts to give an illustration of its development. Undress was worn in lieu of full dress for various reasons; one of which was certainly that of economy. A simpler uniform was less expensive and its use would allow the more elaborate and expensive full dress uniform to last longer. It is also likely that a degree of comfort and flexibility of movement would be experienced when wearing a less encumbering garment. This is perhaps most evident in this work when comparing the hummel bonnet to the full dress feather bonnet where the cost of ostrich feathers would add a significant expense to a feather bonnet

The origin of undress, especially within a Highland Regiment, is difficult to establish with any degree of precision. A number of sources of information are, however, available. Much of this information relates to the army in general and is about specific items of clothing. As a result any attempt to use this information to form an opinion about a designed costume is likely to be incorrect.

Early examples of the hummel bonnet can be seen (see appendix B & Fig 6:2), but the origins of its use as a fatigue or "Furagin cap", for the army in general is somewhat confused with a lack of governance from military authorities. Henderson and Raynor (2004) give a concise and detailed history of the cap's evolution up to the end of the Napoleonic Wars. It is apparent that little evidence is available to allow for any definitive or comprehensive conclusion to be reached of the type of undress cap in use in the late 18th and early 19th century. From their work it seems likely that a knitted cap similar in form to the hummel bonnet was used by many English regiments, certainly by 1815, but these lacked the distinctive diced border. Prior to this, several variations of a cloth tent shaped cap appeared to be in use by the infantry in general, whilst Highland Regiments wore the hummel bonnet.

The Shell Jacket (see figs 3:1 & 3:2) may be traced to its origins in the British infantry, serving in North America. Orders at the time were issued by local commanders instructing their men to have their uniform coat '…cropped short...' or to have their '…Lapels…taken off and Skirts cut Short'. (Brumwell, 2002, p.147). This practice, adopted locally, was used by many units until the end of the American War of Independence in 1781 and demonstrates the use and need for a simpler form of uniform.

It is possible that the evolution of the use of an undress jacket for the infantry, such as the Shell jacket, is identified in the 1802 Dress Regulations (Carman 1940). Strictly speaking this is a transcription of a book bearing the title '…"This is an Amended Copy of the 'Descriptive View of the Clothing and Appointments of the Infantry' dated 22nd May, 1802."'(Carman, 1940, p.200) and gives a series of revisions of the 1768 Clothing Warrant that was out-of-date. Prior to this date the bulk of the infantry wore a full dress consisting of a red coat that cut away to reveal the front of a sleeveless white waistcoat. The 1802 Dress Regulations make it clear that the red coat was altered and had to '...Button over the Body down to the Waist.' (Carman, 1940, p.213) and the issue waistcoat, if worn at all, would not be seen. The waistcoat is described further in the regulations as plain and white with '…Serge Sleeves with Cuffs and Collar as the Facings.' This suggests that the waistcoat was no longer to be used as full dress but used as a separate jacket.

Expense was a major, if not *the* major consideration for the authorities when supplying the Army. It is with this in mind that we see the undress waistcoat appearing as a diversification of the full dress into a second order of dress; the undress. The approach may have enabled the change to be achieved without any alteration to the number of items of clothing issued and, therefore, minimising the cost to the public purse. This change is clarified in the *Regulations for the Clothing and Appointments of the Army, dated 22d April, 1803* published in the King's regulations of 1807. Although these make no mention of a Shell jacket, they do refer to each soldier annually receiving 'A kersey waistcoat, with serge sleeves,…' (War Office, 1807, p.436), which is, in effect, the same garment.

This practice officially continued until 1830 when it was replaced in the infantry by '…a red jacket with regimental facings' (Barthorpe, 1978 p.25); although the white jacket continued to be used in Guards and Highland Regiments. This was probably for reasons of economy as it was more expensive to uniform a soldier in the Guards or Highland Regiments than those of the line regiments. It was likely to be less costly to continue to provide jackets using cheaper white cloth. Precisely when the term Shell jacket replaced waistcoat is not clear, but the dress regulations for 1846 clearly identify a *Shell-Jacket* (Carman, 1971, p.144). A Shell jacket identified as being worn in the Crimean War (1854-56) can be seen in Appendix B, no. 10.

The use of trousers for the infantry and tartan trews for highland troops appears to have evolved independently, although by 1846 the cut of the tartan trews appears to be virtually identical to the trousers worn by the rest of the infantry.

Knee length breeches were considered the correct form of dress for the infantry, although the use of overalls (literally, over trousers) had been in evidence in the 18th century. Official sanction for the use of trousers came with '…His Majesty's Warrant, dated 15th July, 1812,..' giving approval for the infantry to receive '…*Pantaloons,* either of *blue Grey,* or *Dark Grey*, Colour…' in lieu of breeches (Horse Guards 1822, p.90). The sizes shape and cut for the period under study are contained in a Circular Letter from the Horse Guards dated 18th June 1836 (Horse Guards, 1840, p.12-13).

Individuals in undress uniform. Left (Fig. 3:1), Private from: *Soldiers with child sat on gun* (N.M.S.ref M. 1953.538.2) and right (Fig. 3:2), Sergeant from: *Sergeant and Private of the 92nd Gordon Highlanders.* (S.N.P.C. ref. PGP HA 2661)

The trews featured in the 1846 calotypes appear to be of this same appearance but made of regimental tartan cloth. A reference to tartan trews for the infantry is mentioned with a circular letter from the Horse Guards, dated 13th October 1804, instructing several kilted regiments to adopt '…tartan trews,…' in lieu of the kilt (Wilkinson-Latham, 1975, p.40). Although this instruction was not intended for the 92nd Foot, as they retained the kilt (displayed in the calotype), it identifies the practice of making trousers from tartan cloth. It was considered accepted practice that the fabric used for the kilt would be reused to make trews after an appropriate length of wear. Identifying the check pattern from the calotypes

(See chapter 4) is difficult to establish but aspects of the pattern are best seen in the two images above. On the figure of the private it is possible to identify a few light lines running horizontally which are probably the yellow lines woven into the dark Government Tartan to produce the distinctive *Gordon Tartan* worn by the 92nd Foot. Using a rudimentary method of scaling up these checks, based on the height of an individual of 5 feet 8 inches, the stripes are calculated to be approximately 4 ½ inches apart in an analysis of the calotype. This size of checks corresponds with a kilt in the in the collection of the Scottish National War Museum which was probably worn by the 92nd Foot between 1800 and 1850 (ref. M1930.133). This corroboration is based on speculative information but is in distinct contrast to the current Gordon Tartan with its 6 ½ inch line spacing.

Several further items contribute to the undress uniform in the calotype. Around the neck is worn a black leather stock which neatly filled the gap left in the front of the jacket collar. The stock had been long established as part of full dress and, from the calotypes, was apparently also used with the white jacket, although some of the individuals also appear to be wearing a dark coloured neck cloths or scarves. The stock has been the subject of much discussion and criticism. Extant examples are made from stout leather with a brass clasp. A stock in the Regimental Museum of South Wales Borders, Brecon, (acc.no. 1992.36) is 85mm deep at the front and 2.5mm thick. Contemporary comments such as 'the cruelty of the stock' (Myerly, 1996 p.78) and '…constricting the supply of blood from the heart to the brain and to cause giddiness and fainting.' (Borg, 1.6.1971) are common. The use of braces to support the trousers was necessary and typically, these would have been made of a non-stretch fabric. The same buckled shoes used for full dress appear to be worn in undress.

Of note is the Sergeant's sash. It is the only extant object from a museum collection that can be seen on the calotypes and can be attributed the Gordon Highlanders. A sergeant's sash, attributed to the 92nd Foot in the years 1800 to 1850 (National War Memorial Museum of Scotland, Edinburgh Castle. Ref. 1951 GC181), corresponds with the one worn by the sergeant in undress uniform. The one in the museum follows the 1802 Dress Regulations, having been made of red worsted with a centre stripe of facing colour, in this case yellow. It is 74 inches long and five and a half wide when worn. The open weave of the sash means it is capable of being opened to form a crude hammock. This is traditionally a means of transporting the wounded officer from the battlefield but unfortunately the delicate nature of the original object does not allow this use to be tested.

Conclusion

From the systematic analysis of the undress uniform it becomes apparent that it was less a suit of clothes and more a collection of inherited and amended garments that have been formalised over time by the regimental system. It is suggested that the regiment had successfully endeavoured to produce a stylish and practical uniform within the confines of the military system and resources. However, there is little specific documented evidence of the history of this undress uniform, hence the value and major reason of study of the contemporary sources such as calotypes (see chapter 4).

Worthy of note is the observation that by this period the repertoire of clothing available to the soldier was broad. This comprised dress ranging from dress uniform for specific duties through to uniform for undress. Such specification and variation highlights the relationships that would have existed between uniform and the serving individual. Different uniforms would have served to punctuate time and place in that appropriate attire would define specific events or occasions in which an individual was engaged. From this perspective the clothed body becomes aware of itself as well as its place in operations of state. Increasing formalisation and specifications attached to uniform serve to track the increasing pervasiveness of the state into the lives of its serving regulars and how they are used to project an image of the state and its political order. Whilst the sense of occasion associated with full dress is easy to appreciate; it is the subtle character of undress that becomes increasingly significant as even those not engaged in important duties are still 'dressed' (undressed) in a manner that is fitting to an individual who is engaged within a wider field of dutiful action. Such conditions should not be understood as the unintended consequences of the dressed soldier and the increasing role of the military. As Britain sought to expand its role on the global stage through military and diplomatic initiatives it increasingly developed strategies to affect those who adhered to its mission. The increasing formalisation of uniform coupled with the variety of it to cover virtually all aspects of a serving individual's life can be understood as part of these wider strategies.

Chapter 4

CALOTYPE EVIDENCE

Introduction

Amongst the diverse range of evidence which provides insight into military dress at this period (specifically the hummel bonnet) is the archive of early photographs known as calotypes. A number of calotypes relevant to the study were selected and examined. This chapter seeks to establish their value as historical documents, and to provide some context to there their provenance, background and use as historical evidence.

The first use of the lens by an artist is unclear, but typically an artist would use a lens to project an image onto a surface and trace the image as a record or for later use as a guide to producing a painting. This has been demonstrated by Philip Steadman in his study of the working practice of Jan Vermeer. Stedman proves the existence of a device that '… allowed the artist to explore a newly revealed world of optical phenomena…' that could be '…recorded in paint.' (Steadman, 2001, p1).

By 1839, William Henry Fox-Talbot and Louis Daguerre had almost simultaneously produced photographic processes (Schaaf 2000, ps. 21 & 261). This was a significant event which revolutionised the way the world was recorded. Until this event the two dimensional image had to be manufactured by the artist, with all the changes, inaccuracies and omissions common in this practice. With early photography the 'artist' remained at liberty to compose a 'scene' but could not significantly change the reproduced image, as could be done with typical paint media and the brush of the artist.

The calotype process

There remains no significant record of the particular working practices used by Adamson and Hill in 1846, the calotype itself being the only record of their activities. The base of a calotype negative was high-quality writing paper. The paper was washed over with a solution of silver nitrate and dried. When nearly dry, it was soaked in a solution of potassium iodide for two or three minutes, rinsed and again dried.

The collotype paper could be employed completely dry, but was more sensitive when moist, and in any case had to be exposed in the camera within a few hours of preparation. Under near-total darkness, the sensitive collotype paper was loaded in the camera. It was exposed, sometimes for as little as ten seconds, usually for a time closer to a minute and

sometimes in excess of ten minutes. These exposure times are variable and are governed by the available light and focal length of the camera and exposure times '…was no easy matter…' (Taylor, 2007, p.64).

After exposure a solution of gallo-nitrate of silver was applied. This was washed over the sheet of paper in a darkened room and within a few seconds it developed a visible image. When the operator judged that the development had proceeded far enough, the paper was then washed over with a fixing liquid of potassium bromide. At this point, there would be a negative image, deep brown or black in colour, on one surface of the writing paper.

Prints could also be made on calotype paper, exposed and then developed much like modern photographic papers, but only a few prints could be made. Examination of calotype negatives in the collection of the National Media Museum, Bradford, reveals several aspects that give an understanding of the method and quality of these images. Original negatives, in this case 'still-life' by Henry Fox-Talbot, show a coarseness of materials and process but appear to be a true record of the subject. The coarseness is largely due to the limitations of the technology. The quality of the paper used for the negative appears to vary in quality and thickness and contains a large number of coarse elements that may be attributed to the pulping process. These coarse elements are naturally transferred to the positive image.

This negative paper, with its negative image on the face of one side, only allows positive reproductions of the same size. The very nature of the negatives prevented any enlargements being done via a wet film printing process, as the negative has to be in contact with the positive paper. The whole 'Calotype Paper Photographic Process' can be seen demonstrated by Michael Gray (http://www.youtube.com/watch?v=oD30ajWuHUI) on a British Library video dated 6 Nov 2009.

Art or Science, the Calotype.

The photograph has become widely accepted as a document which provides detail of the diverse aspects of the past (Tagg 2007, 2009). This acceptance has not always been clear, with contemporary sources noting that photography at the time of its inception was considered as much an art as a science. As Fox-Talbot (Taylor, 2007, p. 49) seems to agree from a letter on the subject of patents, that he is "…desirous as anyone of the lovers of Science and Art...". Whilst the camera may never lie it appears that it may tell many parallel truths. Photography has several parallels with the artistic traditions and schools. The silhouette was perhaps an inevitable development as a consequence of the early attempts at drawing using photographic images, yet it is a style which is mimicked in other media at the time and comes to define a specific tradition. However, to compare photographic images

with a contemporary painting is to compare two different scales of value. The calotype images can be considered irrefutable as evidence and whilst they no doubt relay values in terms of composition and subject they remain weaker in meaning when compared with an artistic rendering and the ability of art historians to contextualize the efforts of individual artists with a grand narrative of artistic and social development. To quote Berger (Berger & Mohr 1989, 86) 'The photograph offers irrefutable evidence that this man…existed. Yet it tells us nothing of the significance of their existence.' This insight encourages the investigation of calotypes as a useful source of evidence and perhaps a source that is not quite so confounded by the intention and interpretations of artistic effulgence.

Examination of the original calotype negative image is enlightening. The limitations of the rather coarse paper used for the negative is unusual to the modern eye. It is grainy and textured with only a crude translucency reminiscent of modern waxed or greaseproof paper. This limits the sharpness and precision of the image. This, in combination with the long exposure times, presented severe limitations, but was a considerably shorter time than that demanded by a conventional artist.

The limits of photography to represent historical events is an issue that requires careful consideration. Tagg has examined the photograph as an archive of the past and has discussed its value to the historian. A fundamental point identified by Tagg is the ‘Viewer, image, context…’ relationship and the way they are ‘…clamped in place…’(Tagg, 2009, p.5). Tagg also identifies one of the arguments proffered by Alan Trachtenberg, which states that ‘…the photograph gives “immediate access to the past” as “a unique historical record, one that allows us to read, to count, even to measure what once existed.” (Tagg, 2009, p.5). It is with these points then that the potential of the photographic image to historical research is realised and in turn pursued and developed in this research.

Throughout this research use is made of digitised versions of the original calotype images as the repeated reference to and reproduction of the originals made this a pragmatic choice. The physical qualities identified between the original paper negative (see above) and the digitised image are marked as one is fundamentally a ‘...three-dimensional physical objects..’ and the other a ‘…one-dimensional and intangible digital surrogate.’(Sassoon, 2004, p.190) This fact, although not critically detracting from the evidence extracted, should be remembered. The original calotype is very much an artefact and demands a very different interaction than the digital rendering, for this study it is the detail of imagery that is the focus and it is acknowledged that a study of the calotypes in an of themselves is still awaited.

The Work of Adamson and Hill

The pioneering photographic work of Robert Adamson and David Octavius Hill stands as a landmark in early photography. Of the estimated 3000 images taken between 1843 and 1848, the largest archives are in the Library of the University of Glasgow and The National Portrait Gallery of Scotland. The series under study are Calotypes depicting soldiers in Edinburgh Castle. They are believed to have been taken in 1846 and are certainly some of the earliest photographs of military figures.

The photographic team of Hill and Adamson derived from what proved to be differing but complementary backgrounds. David Octavius Hill (1802 – 1870): in his early years he was an accomplished and accepted artist. His early works included lithographs and landscapes, and he was a founding member of the Society of Artists (later to become the Royal Scottish Academy). John Adamson (1809 – 1870) was a physician and served as a ship's surgeon. He is credited with taking the first calotype image in Scotland in early 1842. Between 1842 and 1845 he is credited with using photographs to document efforts to clean up the typhoid–ridden Fishergate area of St. Andrews. Clearly they were both establishment figures with an apparent dedication to furthering the understanding of things Scottish. This development manifested itself in the images that recorded aspects of cultural and social life. Within a single decade they had experimented many of the photographic, stylish and composition skills we still used today. The calotype images of Hill and Adamson, in common with other photographers of the period (Fox Talbot, Fenton, Turner, Sutcliffe, etc.), present what may be considered a sanitised side of life and avoids a less attractive view of society. Even Roger Fenton, the famous recorder of the Crimean War, manages to avoid any hint of death and filth associated with this conflict. Clearly the images under study are presented in an acceptable manner. This is not to negate them as sources of evidence, on the contrary, they are useful but albeit done in an innocent manner.

In 1843 Hill announced his intention to paint the images of more than 400 members of the newly formed Free Church of Scotland. This undertaking involved the making of over 400 calotype portraits, one of each individual member of the newly formed church. These were then used as an aid to produce the finished group painting. It is at this point the partnership of Hill and Adamson was formed.

The painting of The First General *Assembly of the Free Church of Scotland; signing the Act of Separation and Deed of Demission - 23rd May 1843* presents an early opportunity to make direct comparison between the relatively raw and instant image of the photograph with that of the finished work of the painter.

The sharpness of the photograph of Rev Dr Thomas Chalmers (a central figure in the *Disruption Picture* as it became known) can be compared directly with his depiction in paint. His portrait in the Disruption Picture was taken directly from the salt print HA0052 (Fig. 4:1) in the Glasgow University Collection. The photograph has a brightness, vitality and power lost in the considered painting. The face transmits a look to the future not just the calculated now. The process of retouching was not used in this period and it is very much a case of "What you see is what you get".

Left, Fig. 4:1, Octavius Hill, *Rev. Dr. Thomas Chalmers* - salt print HA0052, Glasgow University Collection. Right, Fig. 4:2, Octavius Hill, detail from *The First General Assembly of the Free Church of Scotland; signing the Act of Separation and Deed of Demission - 23rd May 1843* Image © Free Church of Scotland, Photograph by George T. Thompson LRPS.

This remarkable similarity of photographic and painted image may suggest that Hill valued accuracy in paint and therefore was likely to be drawn to the calotype process by virtue of its accuracy of depiction. This might also suggest that he sought to acquire images of daily life which depicted 'real life' even though he constructed the scene.

Costume and the Calotype

Costume which developed flamboyance and '*Scotishness'* became popular with George IV's visit to Edinburgh in 1822. A newly contrived type of Scottish culture flourished and was later taken to new heights by Queen Victoria with her love of all things Scottish. Highland dress became fashionable, and tartan moved from the hotchpotch of checked fabric to a prescribed, controlled and ever expanding series of plaids with specific designs already increasingly formalised by 1819 with the publication of the *1819 Key Pattern Book* from Wilsons of Banockburn (MacDonald, 1985).

Scots artists such as Sir Henry Raeburn and Sir David Wilkie were in demand. These artists recorded the changing face of "Scottish National Dress" through popular well-crafted portraiture and their skilful use of light. Their prominence as leading British artists was universally acknowledged. Perhaps, what is being seen is a period in which Scotland is establishing an identity through costume. The adoption of codified tartans is in its early stages, and their accompanying paraphernalia has yet to arrive, but the elements are there anticipating such formalisation. It is through this process that we are beginning to see the transition from a divided country with highland Scot and lowlander with differing affiliations and tradition, to an identity that was cultivated through individuals such as of Sir Walter Scott and Robert Louis Stephenson. Typical of this period is the image of *Elizabeth Johnstone, The Beauty of Newhaven,* and is reminiscent of earlier romanticised version of the working class. As Stevenson (2006, p.102) states, Hill and Adamson '…did not photograph the distressed people of the High Street,...' but preferred to illustrate the '...wealth stimulated through population growth,…' .

Fig. 4:3, David Octavius Hill & Robert Adamson, *Elizabeth Johnstone, The Beauty of Newhaven*, *1844-1848,* Salt paper print from calotype negative 67.397 copyright V & A

Fishermen Ashore in contrast represents the abundance of types to be seen at this time and recorded by Hill and Adamson. The painter's romantic image has been replaced by a well composed, but indisputably a record of a workaday side of period life. These subjects make an un-filtered eye contact with the lens and are seen in the clarity of that instant.

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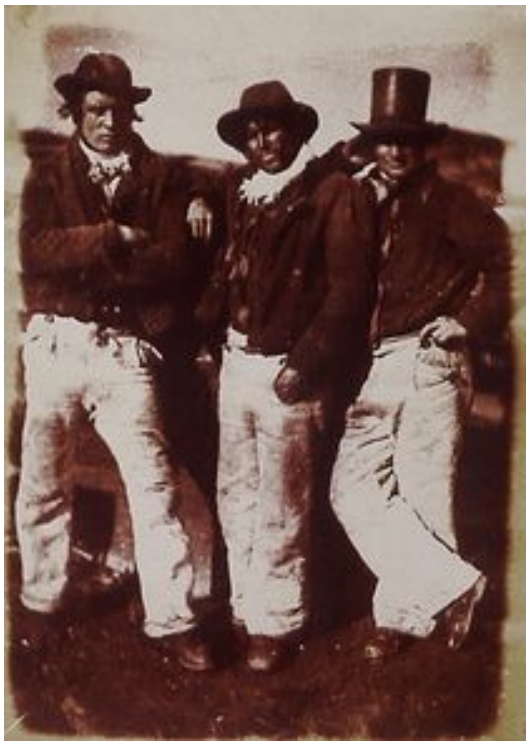


Fig. 4:4, David Octavius Hill & Robert Adamson, *Fishermen Ashore, c.1843-47* Salt paper print from calotype negative 67.693 copyright V & A

As with any visual art form the viewer is being presented with a complex array of information. From its origins, imagery has been created by an individual, the artist, through various media; typically in 1846 through paint on canvas. These artists had the power to present any interpretation of subjects, real or imagined, with any additions, editing or stylistic presentation they desired. Whilst photography offers new means through which to compose images it also shackles the photographer to a visual reality so far not encountered by the artist working with paint. No doubt the photographer is at liberty to arrange the image but it is the relationships between the objects in the composition that are arranged rather than the reality of themselves being subject of artistic interpretation. This confrontation with a captured reality was likely to fascinate individuals such as Hill who had already demonstrated his affection for capturing still life in paint (see above). From this perspective we are led to an increasing sense of confidence in the constructed 'realness' of the subjects captured by Adamson and Hill. With photography this approach was no longer possible as the negative paper can only record what the lens projects upon it. The photographer, or artist with a camera, then encounters a very different working relationship with their subject. Whereas the artist in paint media produces an image which gradually develops over days or weeks and is subject to constant reflection and the opportunity to alter, augment or even delete detail - the photographer deals with the instant. Most calotypes would have been

captured in a short moment and, most significantly, the rendered image could not be altered; it was very much a permanent representation of a moment in life. It is this sense of capturing a moment in life that no doubt appealed to many early photographers and gives us some insight in to the framework of values informed there interest in this newly developing means of representing the world.

The captured image can then be viewed not only as an artwork but as a record; albeit one that means different things to different people. Ronald Bathes (1981) in his work *Camera Lucidia* divides the photographic image into two levels of perception. The "Studium" is the obvious or general perception which the majority agree upon whilst the "Punctum" is what we each as an individual takes from it or perhaps finds in it. It may be considered that Hill and Adamson have left us with a stockpile of Punctum awaiting our individual detection and the above images may be subject to this approach. For the costume historian they can be scrutinised for their record of costume detail, or for a descendant of the subject it is the record of a family member. In this case information about military dress information is the specific aspect of detail which is subjected to scrutiny.

Selecting the calotypes

The calotype images of Hill and Adamson present a unique visual starting point for this research and have several noteworthy qualities. These photographs are well known, as are their creators, but little has been published on these specific images and no in-depth analysis of the subjects has been located. They are certainly among (and may be) the first photographic images of British Soldiers. All the individuals depicted are of the 'lower ranks' that is to say no members of the officer class are visible. These images are of a type of dress and appearance depicted in contemporary period art forms, and as a result direct comparisons can be made with contemporary illustrations. Although the images are of specific regiments most of the composite elements of their appearance are typical of the majority of British Soldiers. The photographic image presents a wealth of detail and accuracy. Semiotic evidence is provided through the costume, stance and interaction of the individuals. The photographic precision of the images, in comparison with artist drawn images, allows the use of scale measurements, known distances can be established and used to calculate others. Many of the aspects of uniform and equipment types can be seen and compared with museum collections. They also present a feasible subject for reconstruction.

The calotypes present an instant, or condensed, image. A snatch in time has been recorded unlike all previous methods of recording imagery. These images have not been painted to

suit a client, or made with the preferences of an artist's licence in the manner that painted media might have been subjected.

Importantly, from the perspective of the researcher, they are conditionally accepted as a true image of the subject. The images are believed to have been made on a specific date (April 1846) and they therefore give an accurate focal date in history.

The Provenance of the Images

In order to establish the provenance of the images the following questions can be answered:

- Were these images made at the time specified?
- Were these images made at the locations specified?
- Are the individuals on the images what they are supposed to be?

It is difficult to give conclusive evidence that the images are precisely what they are described as, but the lack of negative criticism and general acceptance is noteworthy. These images have been reproduced by reputable organisations such as The University of Glasgow, The National Museums of Scotland, The National War Museum of Scotland and The Scottish National Portrait Gallery. The vast majority of published work accepts their provenance uncritically with only one exception casting doubt on the subject as described. Bruce (1973, p.178) accepts the provenance of the images, but states for *Sergeant and Private of the 92nd Gordon Highlanders* (Scottish National Photography Collection Reference: PGP HA 2661), "..that the sergeant is wearing his sash across the wrong shoulder..". Whether this comment is prompted by an assumption that the image has been printed in reverse, or that the sergeant is wearing his sash incorrectly, is not clear. From a study of the architecture at these locations and dress details such as the way the coatees button (buttons stitched to the right side and buttonholes on the left), it is apparent that the image has been printed correctly. The same sergeant can be seen in the calotype *92nd Gordon Highlanders and their wives at Edinburgh Castle* (National Museums of Scotland (Reference: M. 1937.119.11). This is without doubt printed correctly; in this image he is still wearing his sash over the left shoulder.

If it is Bruce's understanding that the sash should be worn differently, it is not supported by the 1802 Dress Regulations (Carmen, 1940, p.224) where it makes clear that sergeants in Highland Corps are to wear their sashes over the left shoulder, as do highland officers. This is in contrast to the rest of the infantry who wear their sashes around the waist. The current practice in highland regiments is for the officers to wear their sash over their left shoulder

and for sergeants to wear them over the right shoulder. It is then apparent that Bruce's criticism of the sash orientation is more likely the result of him making an inappropriate historical inference based on current practice rather than make use of contemporary historical documents. In light of this it is apparent that the calotype images can be held to depict an accurate, if composed, depiction of the 92nd Gordon Highlanders in undress uniform.

The Locations

The locations portrayed are all described as being in Edinburgh Castle. This can be corroborated for the two images of the sentry from the Royal Scots, as they are adjacent to the gun Mons Meg. This gun was brought to the castle in 1835 and shortly after this the iron carriage depicted was made. This iron carriage was later replaced by the wooden one still seen today. Regrettably the area depicted has been considerably altered since 1846.

The locations used for the remaining calotypes has been identified as Forewall Battery in Edinburgh Castle. A site visit established the precise locations used for the images. It was found that the majority of scenes are at the central port (number three of five gun ports) of the Forewall Battery. As little has altered with the idiosyncratic nature of the stone work of the Forewall Battery; it is relatively easy to identify specific locations. For further reference, the location of each calotype has been entered into appendix A. The image *92nd Gordon Highlanders and their wives at Edinburgh Castle* (NMS ref. M. 1937.119.11) was taken at the Northwest end of the Forewall Battery. Today this space is commonly occupied by an armed services' mini bus.

The location used for the image *Soldiers Shooting* has not been identified although it is clear from the identity of the individuals photographed they are the same group seen on the remaining calotypes. It seems most likely that this was taken in the same area.

Image Composition

Acknowledging the nature of the technical aspects of the calotype process allows one to realise that the images were not 'stolen' in fragments of a second as might be possible with modern photography. Rather, these are images of scenes which have been composed. They rely on the cooperation of the subject to maintain a static posture for several seconds to perhaps minutes. The composition of the images, including architecture and individuals, perhaps even time of day can therefore be considered significant. David Octavius Hill was an accomplished artist and photographer, and as such he was experienced at creating a composition and not photographing simply what was in front of him. The figures appear to

be arranged and carefully framed in the same manner that is seen on pre-Raphaelite paintings. The carefully framed figures are shown interacting and focusing in on selected aspects.

All this is in direct contrast to the two images depicting Mons Meg. The composition is sparse in comparison, with the figures secondary to the sky, foreground and large cannon. It is questionable as to whether these two images were made in the same session, or even the same day as the images of the Gordon Highlanders. Little attempt seems to have been made to use the soldier to advantage and we are presented with quite a documentary image. The reason for this different approach to composition is unclear, and may simply be a requirement to record a single figure from the rear and profile to be used in a later work. These images can also be used to give scale to the gun, Mons Meg, used in *Edinburgh Old and New.* It is believed that Hill and Adamson produced the earliest known photograph of people playing golf (Lewis & Howe, 2004, p.26) in order to provide reference material for the Charles Lees painting *The Golfers;* suggesting that they made a habit of collecting material for reference.

The Subjects

Without exception, all the individuals are what would be expected of a soldier of this period. They all have a lean upright build. They all have tidy hair that conforms to the style imposed on soldiers. No moustaches, beards or long sideboards; these were forbidden by '..His Majesty's Commands against wearing long hair and whiskers.' (Horse Guards, 1840, p.26.)

The Figures

The 14 located images have been divided into three categories:

1. Nine images showing what appear to be members of a 'Quarter Guard' (a corruption of the French *Corps de Grade)*. Six of these images are apparently showing most if not all the members of the 'Quarter Guard'; in this case it consists of a Sergeant, 6 or 8 Sentinels, a Drummer and a Piper.
2. Three images of soldiers in undress.
3. Two of a single 'sentry' adjacent to the gun Mons Meg

Analysis of Calotypes

In order to show the depth of the information available throughout the series, the image of the *92nd Gordon Highlanders and their wives at Edinburgh Castle (NMS ref. M. 1937.119.11)* has been selected. The location was identified through a site visit and is sited at the

Northwest end of the Forewall Battery, Edinburgh Castle, looking North West. This appears to be a secluded area of the castle but it is quite an open area at the end of a five gun battery that extends over 30 metres and as such would have been quite a public area as it would be difficult to make private and was probably in open view to any visitors. As the photographs were taken in such a public area, in those times it is likely that it would have been necessary for the individuals in the image to be dressed to the standard acceptable and typical for the period.

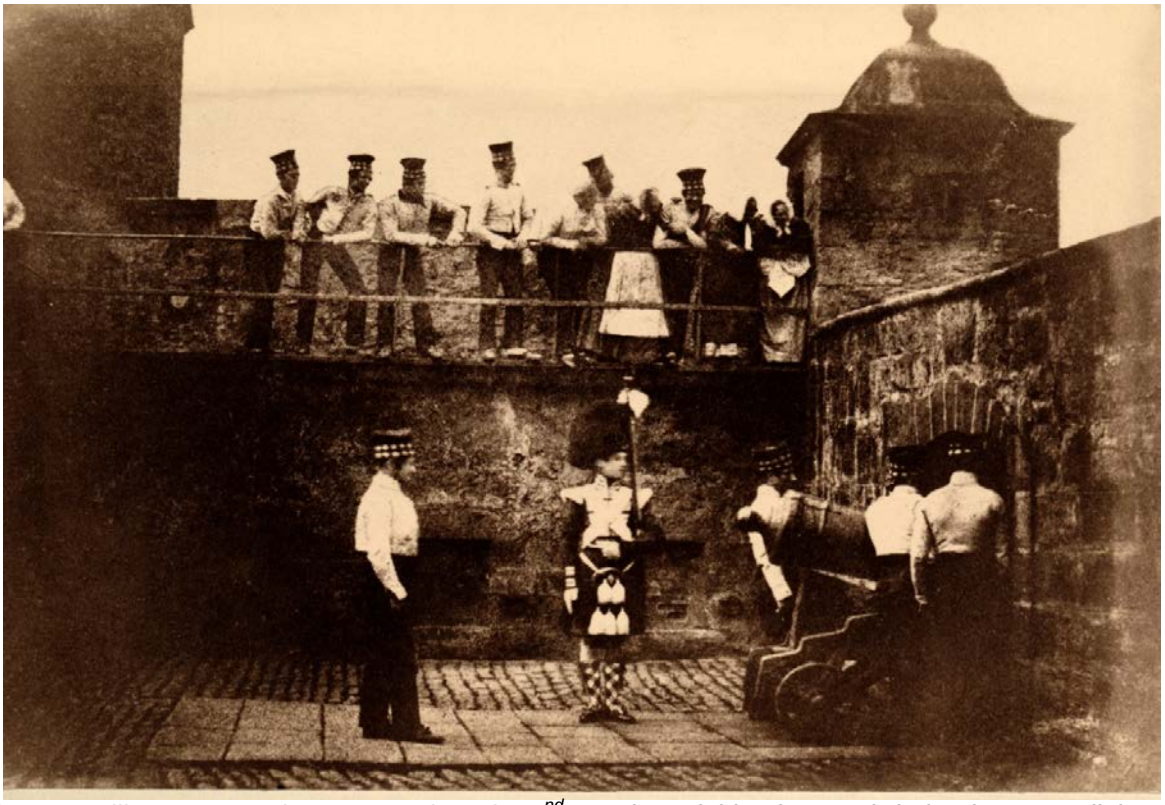


Fig. 4:5, Hill, D. O. & Adamson, R. (1846) *92nd Gordon Highlanders and their wives at Edinburgh Castle,* National Museums of Scotland (NMS ref. M. 1937.119.11)

In this image are a series of contrasts, perhaps most evident is the contrast between the single soldier in full dress and the remaining eleven (plus the elbow seen on the far left) soldiers in their white jackets. Also in evidence are three women, who are most likely to be regimental wives who are 'on the strength' of the regiment, that is to say, they are wives '…whose marriages had been authorised by the commanding officer of the regiment' (Doty, 2003, p. 231).

There is contrast between the group of four around the artillery piece and the individuals gathered behind the rails on the wall. It is suggested that the group around the gun are perceived to be the subject of the collotype, and the reminder consider themselves to be simply spectators. These spectators appear to be far more at ease with themselves, leaning

on a safety rail; they appear to be interacting with one another. As the exposure time may have been several seconds, or even minutes, this period of enforced stillness may have intruded on the individual's degree of comfort and therefore the perceived natural attitude. This suggests the need for a future questioning of the exposure time used to record this image.

The contrast between the soldier in full dress and the remainder is also marked by his demeanour. His stance is stiff, upright and restricted, as would be expected by the restrictions of his dress. He is the only person with his heels together and his arm held stiffly to the side. Except for his head facing towards the artillery piece he is in all respects at the drill position of *Support Arms* (Mitchell 1825, Plate XIV). He perhaps finds it difficult to adopt anything other than this public image. This is in contrast to the individuals in white, especially the spectators. They appear relaxed, casual and it is suggested are behaving exactly the same as a modern audience. It may be that we are looking at one of the most "natural" views of individuals from the period.

A closer study of the spectators allows characteristics to be studied and the hummel bonnets are clearly seen in profile. No two soldiers wear their hats in the same manner although achieving a uniformity of appearance can be achieved as demonstrated by the photographs of Roger Fenton showing troops on active service identified in chapter 6. The individuals appear to be expressing a degree of individuality. As most elements of service life were ordered, this may be a use of individual expression. Their bonnet tops are flat or concave, and squashed over the crown of the head.

The chequered hat band shows signs of distortion, that is to say, they are not square and regular as seen around the base of the feather bonnets. This distortion would appear to be caused by manufacture, fitting or wearing.

The Sergeant at the top right of Fig.4:5 appears extremely confident. This individual looks directly at the camera, has a bonnet that is far more regular in shape. This individual can be seen in more detail in *Sergeant and Private of the 92nd Gordon Highlanders (Scottish National Portrait Gallery Ref. PGP HA 2661).*

Content and Dating

A point that may support the date of 1846 is contained in the image 'A Port Hole'. This image contains a private in full dress and a sergeant in a white jacket and trews. The sergeant has a striped (the pre 1845 regulations specify crimson, yellow, crimson) sash

which is different from the monotone sash worn by the sergeant in the other images. According to the Horse Guards Circular Memorandum of 6th August 1845 the sash with the facing coloured stripe was abolished and replaced by one of crimson throughout. It is suggested that, as this is undress, the sergeant may have been allowed to carry on wearing it, and therefore this change of dress regulations can support the date of the image as being c.1846.

The Private of the Light Infantry Company 1st of Foot (The Royal Scots) is seen stood next to Mons Meg. Mons Meg returned to Edinburgh Castle in 1835 and the iron carriage built soon after. The Royal Scots returned to home service in 1846. This private can be identified as being with the 1st Regiment of Foot (The Royal Scots) through the Arabic numeral '1' painted in white in the centre of his knapsack. He is further identified as belonging to a flank company (either a Grenadier or Light Infantry company) through the crescent shaped 'wings' on his shoulders. The dark spherical pompom on his shako also aids identification. This can be interpreted as being a green light infantry worsted ball tuft as the only other alternatives were an all white ball for grenadiers or the divided colours for battalion companies, of white over red.

As members of a 'Guard' the soldiers would be expected to present themselves in a manner to reflect what is a high profile and quite public event. The uniform and equipment conform precisely to that covered by Queen's Regulations for the year 1846. This conformity not only applies to the individual items of clothing and equipment, but to the general manner and precision of dress and appearance required. This emphasis on "…better fitting and improved appearance…" (Horse Guards Circular Letter, 10th June 1836) is a subject that was fostered at the period.

The attention to detail reveals the signature features of authentic soldiers. These aspects are not apparent to an untrained eye but are quite obvious with in-depth study. All bonnets are worn in a uniform and tidy manner with a slight tilt to the right to allow the musket to be carried against the left shoulder. The coatee were made to fit the individual as was the military approach to tailoring; the snug fit, the sleeves at precisely the right length and the collar fitting neatly over the leather stock are typical. The kilts and sporrans are fitted and adjusted to fit at a uniform manner. The shoulder wings are neatly trimmed and set with precision. The hoes are worn to a uniform height with garters fastened neatly and the dicing straight.

This same precision is reflected by the equipment being worn. All musket slings are fitted tightly to the weapon with slides fitted in the correct manner. The cross belts present a symmetrical appearance with the belt plate sitting precisely in the middle of the chest. On a few images knapsacks can be identified. Again these framed knapsacks (Cooper 1991, p.34) are worn in a precise manner; with the top edge at the same height as the bottom of the collar and the issue greatcoat squared off to fit the outside flap (Queen's Regulations 1844 p.158). All these minor points are extremely difficult to achieve and present in a consistent manner for all the individuals under study. It is the attention to such detail that is so often absent from the representations provided by re-enactment groups. This level of dress precision does not occur naturally and is the result of skill in the effective presentation of the self coupled with a specific body of knowledge concerning appropriateness of appearance. Noting such precision supports the contention that these individuals are what they are said to be rather than actors or other imposters simply posing for a constructed scene.

Semiotics

As little commentary is available on the Calotypes, the study of semiotics in the images is an important element of the research. Issues such as attitudes, interaction, and the stance of the individuals, together with costume information can be identified throughout this series. As Aston and Savona (1991, p.147) explain, symbolism manifests itself through '…character representation…' where aspects are '..encoded in highly symbolic ways.'

Particular examples, specific to the military, are of particular note. Typically the men are in their own individual spaces, weapons kept close to the body but not touching. Hours spent applying pipe clay to belts and cleaning uniform can be easily messed up by an accidental brush with a wall or companion. This is in contrast to *Fishermen Ashore* (V & A ref. 67.693) in the section on costume and the calotype. In this image the fishermen look comfortable, individualistic and untidy.

Also of note is the piper. It was not until 1854 that pipers were officially recognised as being part of a highland regiment, although it is well recorded that they were used long before this. Even today, pipers consider themselves to be a superior breed of soldier/musician. As early as the eighteenth century comments by a piper include "Shall some wee fellow who beats a sheepskin [a drummer] take the right hand [senior position] of me who am a musician?" (Murray 2001, p.3). In other words, he considers himself to be superior to a mere drummer. The piper in the images never appears to be one of the crowd and, perhaps significantly, he is the only one who has his cuff buttons unfastened.

The three images of soldiers in undress appear to be a less formal. Most of the soldiers in *92nd Gordon highlanders and their wives at Edinburgh Castle* (NMS ref. M. 1937.119.11) are wearing white jackets, tartan trews and the hummel bonnet. As these items of dress are intended to be worn on less formal occasions, a more relaxed attitude towards dress can be observed; several of the men have their collars turned down, they lounge about in a relaxed manner and their bonnets are pushed into a number of shapes.

Chronology

Through the detailed study of individual images it is possible to reconstruct a sequence of images. In establishing a chronology a deeper understanding of the activities of the subjects may be achieved. It is reasonable to suggest that these are posed photographs, where the photographer is intending to achieve a particular composition. As a consequence the participants are being manipulated to achieve this look. Therefore this is likely to include the way garments are seen.

The first in the suggested sequence is Soldiers with drummer with drum on back. (NMS Ref: T.1977.4.7). Seen at the right is an arched gun port, and at the left the blurred image of the cascable (breech) of a gun. These two elements can also be seen in slightly altered positions in the next three images. Clearly identified are the Sergeant and the Drummer. Typically the Drummer carries his drum on his back to allow for ease of transport when not playing it.

In the first calotype the group has little sense of composition and all appear to be facing away from the camera, looking in a variety of directions, but notably they are introverted in their grouping. They appear to look to one another for company and guidance. The exception is the Sergeant (front left). As a senior Non-commissioned Officer, he is a member of a different social class within the regiment, and as such would be expected to be insular in his attitude when with the lower ranks.

Fig. 4:6, Hill and Adamson, *Soldiers with drummer with drum on back*. (NMS Ref: T.1977.4.7)

This introverted group is similarly illustrated in the background to one of Edward Hull's period illustrations (Hull, 1830). The similarities of their stance, spacing and numbers grouped together are reminiscent of the grouping in the above calotype. This would suggest that this first gathering is more typical and naturalistic i.e. typical of their usual stance and activities, than the later chronology which appears more posed and the individuals are more focused on the camera.

Fig. 4:7, Edward Hull, (1830) Detail from *Military Costume, Drummer of the Royal Marines. 1830,* Hand coloured lithograph by M.Gauci

Second in this sequence is *Soldiers in Edinburgh Castle* (Capital collections Ref: 4141). The camera angle has been moved slightly to the left, cutting into the gun port and exposing more of the cascable at the left. The group appear to have been arranged in a semicircle. The drummer has placed his drum with its top skin towards the ground and resting on its short purpose built legs. The Sergeant is notable by his absence.

Fig. 4:8, Hill and Adamson, *Soldiers in Edinburgh Castle* (Capital collections Ref: 4141)

Third in this sequence is *92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.* (S.N.P.G. Ref: PGP EPS 15). By the position of the cascable, the area of gun port in the frame and the introduction of what appear to be another cascable ball on the right of the image, it appears that the camera has been moved away from the subject. This has a similar composition to the above including the position of the side drum and most of the individuals but in this case the Sergeant is introduced to the centre, as a focal point. Note the piper at the right of the image.

Fig. 4:9, Hill and Adamson, *92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.* (S.N.P.G. Ref: PGP EPS 15

Fourth in this sequence is Officer *of the 92nd Gordon Highlanders Reading to the Troops, Edinburgh Castle (*Met. Ref: Met-3274). The camera angle remains unchanged as supported by the surrounding artillery pieces and the subjects have remained in their locations. Only the side drum has been relocated and the individuals have altered their positions slightly. At the centre top is what appears to be a section of the castle wall leading to what corresponds to the same rectangular tower seen on *92nd Gordon Highlanders and their wives at Edinburgh Castle* (Ref: M. 1937.119.11).

Fig. 4:10, Hill and Adamson, *Officer of the 92nd Gordon Highlanders Reading to the Troops, Edinburgh Castle* (Met. Ref: Met-3274)

Fifth in this sequence is *Sergeant of the 92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.* (Ref: PGP HA 4557). The camera angle has changed. The same individuals are present except for the drummer who is absent, and whose drum has been turned upside-down. If we suppose the piper (centre back) has not altered his location as the artillery pieces (left and right of the image) are two of the same ones previously seen, it would suggest that the camera has been moved around to the left and altered the angle by approximately 90 degrees. The rectangular slabs of the gun platform and the smaller cobbles support this supposition.

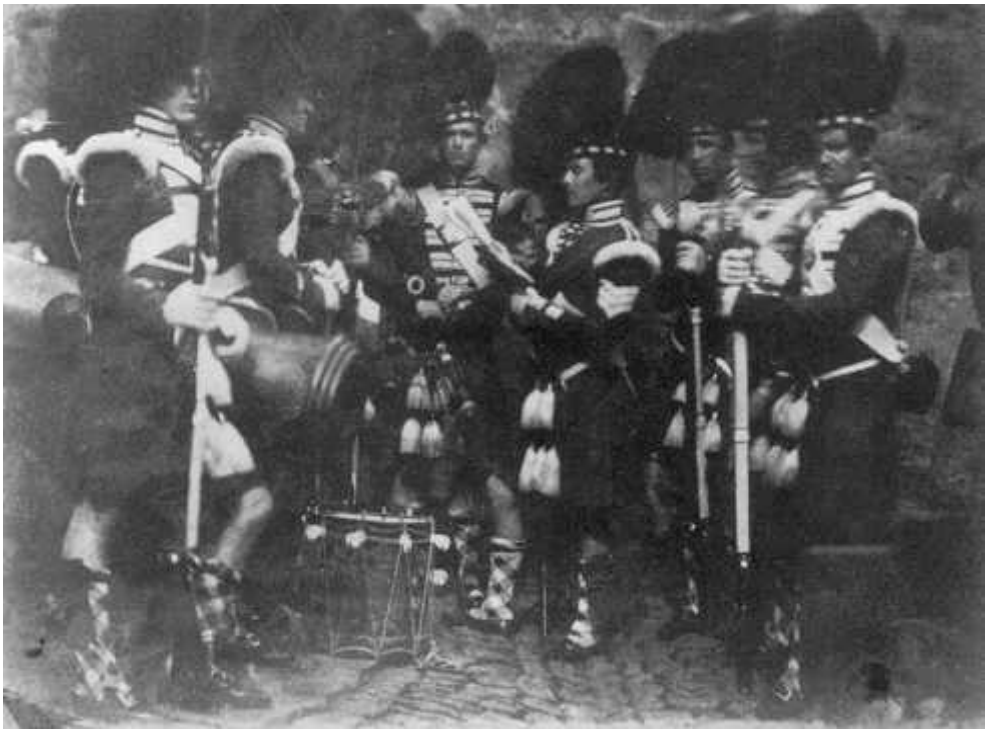


Fig. 4:11, Hill and Adamson, *Sargeant of the 92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.* (Ref: PGP HA 4557).

The 'natural' effect reflects the more likely, or common, behaviour of these people in this situation. That is to say, as probably part of a castle guard on this day and as such they are wearing full dress. Full dress is elaborate, restricting and would take a long time to clean to the required standard. After spending hours whitening belts and brushing clothes the last thing the soldiers would do is lean against a dirty gun emplacement. This is reflected in the first image. As we progress through the sequence we see individuals leaning, inclining at unnatural angles and even sitting. Through the simple expedient of imitating some of these stances in front of a mirror it is apparent that they are unnatural and uncomfortable. Attempting to inhabit these same spaces during a site visit quickly established that attempting to sit in the manner of the sergeant reading out orders, was a less than relaxing experience.

Conclusions

Following the examination of the images, it is concluded that the images are what they seem, soldiers in Edinburgh Castle in 1846. Whilst the images were no doubt composed it can be established that the dress precision and demeanour or the subjects is appropriate and useful representation of the 92nd Gordon Highlanders and therefore is a valuable source of evidence for subsequent experimental reconstructions. The validity of this source of

evidence is apparent from having scrutinised their appearance, analysed the spatial location of the images and reviewed evidence for and against their authenticity (see above)

From the suggested chronology, it can be concluded that most, if not all of the images were taken in sequence, one after another, at the same location on the same day. It is likely that the only probable sequence for these five images is the one suggested and it does seem to progress logically.

This chronology also illustrates a progression from the 'natural' to the contrived or from a relaxed posture to a posed position. By identifying such features of the images it is possible to establish important evidence regarding the 'natural' and 'unnatural' behaviour of the individuals under study. Contrivance by the artist to achieve an image is apparent, and as such must always be borne in mind. Without doubt, the fourteen calotype images give a unique, accurate and '*honest'* focus for any research into the dress of early Victorian soldiers.

Chapter 5

INTERPRETATION, PERCEPTION AND VALUE OF ART

The form of the artefact is a valuable source of evidence when embarking on any historical study. However, where few and sometimes fragmentary examples exist, visual representation or 'art' can provide a useful and indeed fruitful source of evidence. Further, not only does it provide alternative representations of material culture, be they complementary or antagonistic, they also serve to provide a wider context of analysis as artefacts are rarely depicted 'as is' in an abstract manner and, even when they are, such abstractions can in themselves be particularly informative. However, as mentioned above, whilst the illustration might be used to augment our understanding of a particular class of artefact such sources of evidence should be recognised as constructed from the artist's perspective and will thus need to be critically assessed and evaluated. Artists always have an agenda, even (or perhaps especially) when they proclaim they have none. As such, their representations may not be primarily concerned with the accuracy of a subject or events. The interpretation of the subject, soldiers, through the work of differing artists, together with an examination of the way the subject may have perceived themselves, is explored here.

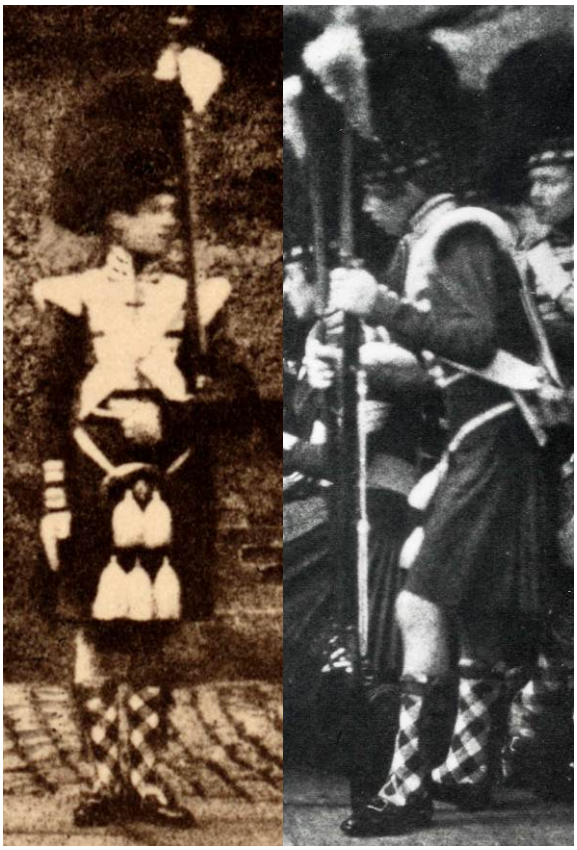
Contemporary art works are used as a major source of information particularly when little other information survives. In order to understand and evaluate the value of contemporary art as a source of information to the researcher, comparative works have been studied. This has been done through the use of closely related subjects that have been interpreted and portrayed by differing artists. Among these works is a pair of 'primitive' watercolours typical of work done by amateur artists who may also have been soldiers at the time. These have been used to develop an insight into contemporary art records and a way of understanding the way soldiers may have perceived their own appearance.

If we take the calotypes as an accurate point of reference it is then possible to make comparisons with contemporary interpretations from the period. Direct or near direct comparisons have been made using:

- Studies from the Hill and Adamson calotypes under study
- The painting produced by Hill from the calotypes
- A pair of highly fashionable contemporary oil paintings produced by a successful artist

- A pair of primitive watercolours

It has been established in chapter 4 that the soldiers in the Hill and Adamson calotypes, despite manipulation by the photographer, can be considered a valid, if not true, image of the 92nd Highlanders in 1846. Therefore the two individual Highlanders below (Figs. 5:1 & 5:2), can be considered to be representative of the soldiers of this period. The sentry at the left is quite squat, steady on his feet. He is smart, regular, controlled, with little swagger. His appearance is that required by the drill manual, a habitual pose that he would be confident to adopt. This is in contrast to the tall private on the right, who appears to have been brought to the forefront of the image as part of a contrived composition. His stance does not appear to be of his own choosing and it is suggested that he has been put in this position as dictated by the photographer. The analysis of the chronology of the calotypes suggests an attempt by the photographer to place the men in poses he considered more desirable. Both these individuals have been photographed and as such are accurate representations from life, nonetheless they are presented to the camera in differing manners to suit the desires of the photographer.



Left (Fig.5:1), Sentry from *92nd Gordon Highlanders and their wives at Edinburgh Castle.* Right (Fig. 5:2), Tall Private from *92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.*

The painting (Fig 5:3) shows the use of several of the calotype subjects incorporated into the foreground. These include the 'Tall Private' (fig. 5:2), the Drummer from *Piper and Drummer of 92nd Gordon Highlanders, Edinburgh Castle,* and a child sat on Mons Meg from *Edinburgh Castle, Mons Meg.* All these figures are identifiable but have naturally been subject to interpretation by the artist. Viewing the painting *Edinburgh Old and New,* the author identified that the 'Tall Private' for instance, has been given a minor adjustment to his stance giving him a less angular and more crescent shape. This suggests the desire for a more elegant representation. This may be directed towards the expectations of the art market, the desire to flatter the subjects, or the preferred image of the artist. Whatever the answer, the photographic image recorded (by the same artist) has been replaced by another.

Fig. 5:3, Hill, D. O. (1846) *Edinburgh Old and New.* Oil on Canvas, National Galleries of Scotland, Reproduced on line by Wikigallery.

The interpretation rendered by Alexandre-Jean Dubois Drahonet is well known. These consist of a series of individual portraits of members of His Majesties' Forces, originally commissioned by William IV, they remain in The Royal Collection. The two figures below, Lance-Sergeant Cameron and Private Richie, are typical of this series. Both figures were done from life in 1833, and the artist carefully notes the subject's name, date and regiment on the artwork. Study of the images reveals a degree of detail that appears to be correct in all particulars. The style is typical of the period the figures having an'…elongated appearance of graceful mannequins such as appeared then, as now, in fashion plates' and were '…marketed for their 'uniform' appeal.' (Spencer-Smith, 1990, p.12).

In these studies the interpretation required appears to be a flowing, elegant, and with moving fabrics. Again, the elegant aspects have been slightly altered by the artist. The bonnet is at a severe tilt with a tight head band making the bonnet perch high on the head. The elongated diced border, flowing ribbons, the bonnet resembling balloons are almost theatrical. The kilt is waving around with little more than a suggestion of pattern. The position adopted by the sergeant is extremely unnatural. Despite appearing to be casual and relaxed, this pose is difficult to achieve. In attempting to achieve this stance its unnatural form was quickly revealed along with the hasty arrival of considerable discomfort. It is then suggested that this pose has been adopted at the direction of the artist. The artist may be seen as producing an accurate depiction, but this is not supported by the photographic evidence or the simple observation or rather the sensual experience of this particular bodily posture or stance.

Left (Fig. 5:4), Dubois Drahonet, A.-J. (1833), *Lance-Sergeant Donald Cameron, 92nd (Highland) Regiment of Foot.* Right (Fig. 5:5), Dubois Drahonet, A.-J. (1833), *Private Alexander Ritchie, 79th Regiment of Foot (or Cameron Highlanders),* Both copyright The Royal Collection.

The style adopted by the artist in the two primitive watercolours below is very different (Figs. 5:4 & 5:5). The artist of these is unknown but the genre is not uncommon. The genre is to be found in several museum collections and commonly depicts soldiers of the lower ranks. Typically they show a soldier, and sometimes his wife, in a very two dimensional manner. This genre of artwork has been identified as *self-portrait* (Haythornthwaite 1988 p.29), but it is apparent that many may have been done by the same hand, and the images below may

be considered typical. The obvious similarities of stance, composition, detail, period, together with the fact that they are both from the same regiment (The Black Watch), suggests that they are the work of the same artist.

In this case it is proposed that this represents the image from the perspective of the rank and file; things that are important to the life of the soldier are portrayed in some detail. Of particular note is the amount of detail portrayed. Perception of all the composite elements is likely to be the way he perceives his uniform and therefore his appearance. He is responsible for, has to clean and maintain, dress himself in, wear, and to a large extent pay for these items. They also reflect his status, who he is and what he does. Badges of rank and status are always predominantly displayed. His regimental identity is presented in details such as the rigidly portrayed tartan, regimental lace detail, stocking texture and the shoulder straps displayed in plan. Beneath the feathers of his bonnet is shown a light of blue section, informing the viewer that there is a hummel bonnet below, detail not normally seen or recorded by an artist.

His solid stance is reminiscent of the photograph of the sentry (Fig 5:1). His leather stock gives rigidity to the head that is missing from the work of Dubois Drahonet. The emphasis on smartness and precision of appearance may well reflect the efforts required to present himself in the full dress at this period. It is suggested that the subject is reflecting the elegance and style understood within his own sphere. With his bonnet tilted to an angle similar to the calotypes, he is in control of his appearance.

Left (Fig. 5:6), Artist Unknown (c.1842), *Private John Orr,* Watercolour, and Right (Fig.5:7), Artist Unknown (c.1840), *Sergeant J. McLaran,* Watercolour

When considering how common soldiers perceived themselves, it is important to consider how they observed themselves. How would the individuals have known what their own individual appearance looked like? How could he have judged his own outward show? A full length mirror, a common sight for a modern soldier, was a luxury unavailable to common soldiers of the 1840's. A shaving mirror and perhaps the occasional reflection in a barrack or shop window was perhaps the best image of the individual available. Was their appearance regulated by inspection and mutual grooming, peer pressure, peer scrutiny, guess work, practice and repetition?

It is suggested that common soldiers perceived themselves as being *correct* within their own world i.e. a soldier, knows what he is and what he aspires to look like. The controlled environment of regulation allowed a degree of style to manifest itself, but this style needs to be quantified. If comparison is made with Roman soldiers gravestones of the 1st century AD parallels can be drawn (see Fig.5:8) .

Fig. 5:8, Tombstone of C. Valerius Crispus, legionary of LEGIO VIII AUGUSTA, Wiesbaden, 1st century AD

Speidel (2012) identifies that the gravestones were based on the choices made by soldiers and a study of these shows several similarities. A precise approach is taken to the depiction of the soldiers dress, weapons and accoutrements, and little artistic style is used to illustrate his body form or facial characteristics. He is seen full square on from the front, arms away from the body holding the tools of his trade, and even the legs run down in parallel down to his military footwear. All characteristics of the watercolours of *Private John Orr,* and *Sergeant J. McLaran.* Speidel speculates as to the reason for this. The soldier may want to see himself as an agent of an imperial power, to demonstrate his wealth and success as a soldier, or a proven leader of men (Speidel 2012, p. 1-2).

These comparisons between the differing forms of contemporary imagery have led to several revelations. The Calotype image, despite being naturalistic, cannot be considered in isolation and its value to the researcher needs to be reflected upon. To simply dismiss other visual evidence out of hand, as not being an 'accurate' or 'photographic' representation of a subject, as with all evidence, needs to be carefully considered.

The use of Calotypes as an accurate foundation on which to study the past has been established (see chapter 4), but as with any evidence, it may be incomplete and complementary sources have value and may be able support the evidence. An obvious limitation of a black and white image is the lack of colour, something not lacking in the other works studied (figs. 5.3, 5.4, 5.5, 5.6 & 5.7). Although difficult to quantify, the coloured image, albeit done through the eyes of the artist, presents an image that can be considered to be a vision closer to that seen by the naked eye.

Also in need of reflection is the static, or apparently static, nature of the calotype. Although an artist's model does have to maintain a pose for the benefit of the artist, the artist can present the figure in an attitude of motion or animation which can reflect the events of a span of time. This can be seen in fig. 5.5 with the blowing ribbons and tartan scarf. As such this can be considered to be a significant contribution to our understanding of the nature of the dressed figure. Therefore a lack of movement may be considered to be a limitation of the value of the calotype.

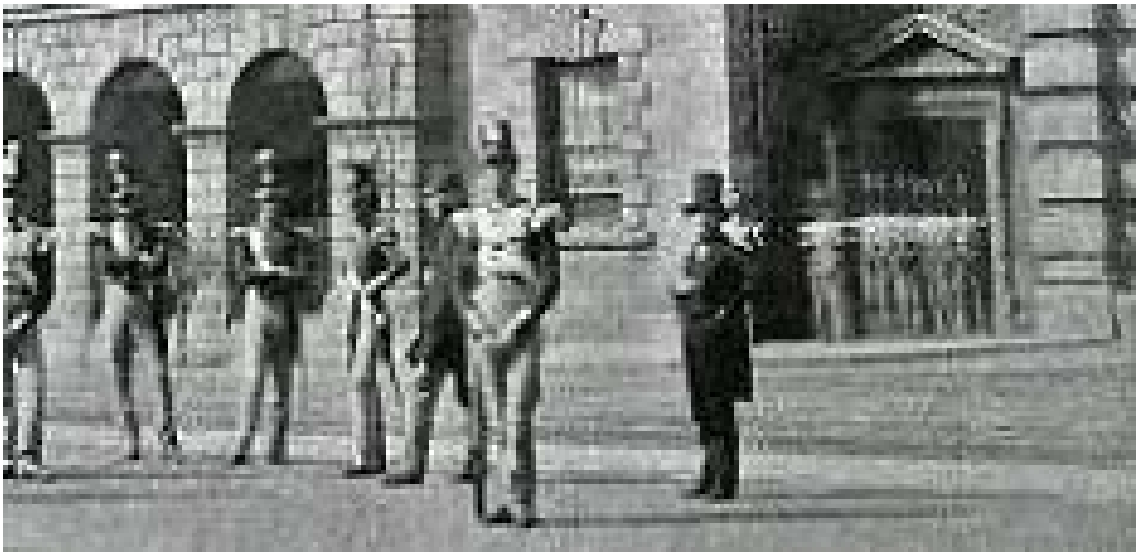


Fig. 5.9, William Henry Fox Talbot, Calotype, detail, *Dublin Castle Guard c.1840,* Science Museum, London. Image No. 10312920

This apparent lack of 'movement' necessary to the making of a calotype can be questioned. The image above (fig 5.9) questions this assumption. It depicts soldiers of the Dublin Castle Guard in the 1840's, with the subjects remaining motionless for a specified period, as dictated by the photographic process used. Of note is the series of small blurred images adjacent to the main public entrance to the castle (right of frame). This is an image recording a sentry apparently moving across part of the image. These are reminiscent of a moving image, from which it may be concluded that we have a visual record of an individual's

physical movements in the time allotted for a calotype exposure. As to whether this was expected, desired, or was simply considered an annoyance, is open to question. It may have even been staged as part of an experiment. This is questionable and is a possible subject for further research.

Conclusion

Whatever these reasons for these different styles, it is suggested that perceived naturalistic image should not be taken in isolation as a source of information for the researcher. Each style, be it a fashionable oil painting, primitive watercolour, or photograph, all are in reality simply being used to send a message. As with any message the author is attempting communicate their own agenda and by recognising this agenda a better understanding of the subject under study may be achieved. In light of this statement it has been demonstrated that the calotype images, despite the manipulation by the photographer (see chapter 4), present a true, and possibly the truest, image of the subject under study. It has been identified that this form of contemporary imagery provides a useful and indeed fruitful source of evidence on which to base a reconstruction.

Chapter 6

THE CHARACTER OF THE KNITTED BONNET

The origin of the Hummel Bonnet

The term ‘hummel’ refers to the characteristic of these bonnets that they are, unlike the elaborately decorated ‘Feather Bonnet’, unadorned. Whilst to many the term hummel may appear obscure, it is a term used to describe a stag or cow without antlers that is recognised to be used in Scotland and Northern England ‘Hummel Stag’ (Oxford Dictionaries). In addition to the ‘hummel’ bonnet it is also referred to as a ‘Kilmarnock Bonnet’ or ‘Stewarton Bonnet’ taking it’s name from the places of manufacture in the Scottish Lowlands.

Little information is available on the origins of the knitted bonnet. Nargi (2011) in an examination of the history of knitting in France links the history of the beret to the knitted ‘Phrygian Cap’, also known as the Liberty Cap, used in Revolutionary France described as a ‘floppy knit woollen caps’ (Nargi 2011, p. 25). Within Britain records exist of cap makers from the middle ages, but records from Nottingham in 1478 contain a reference to an application to trade as cap-knitters (Rutt, 1987, p.58).

Fig. 6:1, Monmouth Cap, Monmouth Museum, Monmouth.

A form of knitted cap popular throughout Britain was the Monmouth cap. This type of knitted cap has characteristics similar to the Kilmarnock bonnet, with its knitted form, heavily milled 2 ply yarn and hard wearing nature. As with the Kilmarnock bonnet, the term 'Monmouth cap' does not necessarily imply that this cap was manufactured in Monmouth, although many were (Buckland 1979).

Bennett (1983, p.456) suggests that the origins of the Scots bonnet lay in the flat fashionable headgear worn by all levels of society of European men in the 15th century. By the early 17th century it was descending the social scale and becoming unfashionable, although it retained its popularity in Scotland. The 'Blue Bonnet' was noted as a universal head covering since the 1660s where it is recorded that '… men wear blew bonnets…' and '... the Scots generally (that is the poorer sort) were, the men in blue bonnets…' (Dunbar, 1981, p.154). Despite its association with the Highlands of Scotland, Bennett (1983, p.155) clearly states that 'There is no evidence for the craft [of bonnet knitting] being carried out in the highlands…' and that since the 17th century Kilmarnock and Stewarton were the major centres of bonnet production. Of interest is a footnote (Bennett 1975, p.180) which refers to "…record that some 'Kilmarnock caps', made in the Yorkshire dales, required as many as 9 pairs." of knitting needles to make them suggesting that the production of this garments is perhaps far more complex and varied than what one might intuitively think.

Adoption by the Military

Garments recovered from a peat bog at Arnish Moor on the Isle of Lewis, and now in the National Museum of Scotland, have been dated from the early years of the 18th century. According to the description given by Helen Bennett (Bennet, 1983, p.176-7), they include a 12 inch diameter knitted bonnet with many of the elements seen in the later hummel bonnets. It is made of coarse wool knitted in stocking stitch, and worked in the round using increasing and decreasing numbers of stitches to give it shape. The fabric is firm and heavily felted, so much so that where the fabric is torn the stitches do not run. Although it is now a brown/green colour, analysis has shown that its original colour was indigo blue. Around the base of the bonnet the edge was turned in to form a double headband. This is decorated by knots of red wool approximately every other stitch.

Fig. 6:2, Knitted Bonnet discovered at Arnish Moor, Lewis. Early 18th century (Bennett 1975)

The knotted decoration may be an indication of the origins of the diced border that became popular towards the end of the eighteenth century. According to William Thorburn, curator of the Scottish United Services Museum (now the Scottish National War Museum) the diced border did not appear on military bonnets until the mid 1760s (Bennett, 1983, p.181).

Fig 6:3 David Morier (1745-85), *An Incident in the Rebellion of 1745*, detail, Oil on canvas, The Royal Collection

The blue bonnet was commonly associated with the Highlanders Clansmen (see fig. 6:3) and as such it may be considered as a piece of military clothing (Reid 1994, p.74, p.102-3) and following the 1745 Jacobite rising was adopted by highland companies in the service of the crown. The transition from the simple blue bonnet, in the form of a beret, to the bonnet depicted in the calotypes has not been easy to accurately establish but contemporary illustrations give ample evidence support this transformation. The use of a 'diced border', a decorative feature of the bonnet, appears to come into use and was well established by the early 19th century.

It has been commonly suggested that the grounding for the magnificent feather bonnet seen in the calotypes, and extensively used by pipe bands today, comes from the use by Highland troops serving in North America in the Seven Years War. These early examples result from the application of black bear fur (McCulloch, 2008, p.20) and black feathers to the side of the simple knitted hat.

Perhaps one of the best illustrations of the transition from simple bonnet to the feather bonnet seen today is in the painting of Alexander Montgomerie by Sir Joshua Renolds and dates from 1785. Clearly shown is the simple blue bonnet with the diced border adorned with several relatively small black feathers. These early developments of the feather bonnet can, with hindsight, be recognised as a forerunner of the voluminous bonnets of the Victorian era.

Fig. 6:4, Sir Joshua Renolds, (1784), *Alexander Montgomerie, 11th Earl of Eglinton (1726-96),* The Royal Collection

The universal use of the hummel bonnet as an undress item by the Infantry of the British Army is seen from around the end of the Napoleonic Wars (Henderson & Raynor, 2004) The diced border being reserved for highland troops, the bonnet used by the bulk of the army used a similar form and materials but of simpler coloured designs. The photos of Roger Fenton support the fact that the hummel bonnet became the standard form of head wear for the British Infantry in the Crimean War (see Fig. 6:8)

In his work on tartan and bonnet manufacturers Major Scobie (1942, p.69) makes use of manufacturers record to comment on the supply of bonnets to the army. He comments on the 92nd Foot and their use of '…two or more "rings" in different colours, as in the case of the 92nd, c.1828'. The article makes clear that information in this period was idiosyncratic and, as a result, the need to use a photographic image as a focal point is important. Little period information is available and difficult to interpret, and therefore a 'snapshot' from the period is one of the few sources that provide a reliable record.

Period illustrations of the hummel bonnet are not difficult to find, but interpretation can be problematic. Unlike other pieces of period headgear such as a helmet or shako, the hummel bonnet is not rigid. Being knitted, its flexible nature makes it one of the few *uniform* items that has the ability to escape the rigidity that applies to other items of uniform. Period illustrations such as Walker's *The Ruddle Pit* provide a glimpse into period dress. *The Ruddle Pit* is part of a series of prints depicting costumes from Yorkshire and was produced in 1814. The series depicts many trades and characters from this date. The print (Fig. 6:5) shows what is accepted as a discharged soldier wearing the remains of his uniform, notably his red coat. The shoulder detail (wings) of the coat suggests he is from a grenadier or light infantry company, and as only one red faced regiment is from Yorkshire, he is often attributed to the 33rd (West Riding) Regiment of Foot. On his head is a dark coloured cap with little detail to identify its origins. It is shapeless and importantly, it has no peak or brim. All the male figures illustrated in this series, with the exception of the discharged soldier, no matter what a man's trade or station in life, are depicted wearing brimmed hats. This leads to the supposition that this headwear is of a different character to all the others, and may be an early depiction of a hummel bonnet that was being introduced to the infantry around this time.

Fig. 6:5, *The Ruddle Pit*, from Walker's Costumes of Yorkshire

In contrast to Walker's illustration is that of Edward Hull (Fig.6:6). Hull was a popular, prolific and in many eyes, quite an accurate observer of the military subject. The military historian, and one time Director of the National Army Museum, W. Y. Carmen has made wide use of Hull's illustrations in his works. Carmen states (Carmen, 1968: p. XVI) '..the contemporary picture should give the truest evidence..' but he qualifies this by saying '…he [the artist] may prefer to sacrifice details..' such as '..making head-dress much larger and imposing than in real life.' In *Bugler of the Seventeenth,* Hull depicts a bugler from the light company of the 17th (Leicestershire) Regiment of Foot. The Bugler is clearly shown wearing an undress cap of quite a different shape. The rounded head band and the lack of a welt at the edge of the crown (commonly put into the seams when making caps with disks of cloth), in association with a large green toorie (wool ball) would suggest that this is a regimental variation of the knitted hummel Bonnet with additional shaping. This shaping was perhaps done through the use of blocking and/or the placing of a disk of paste board in the crown.

Fig. 6:6, Edward Hull (1830), *Military Costume, Bugler of the Seventeenth. Undress.*

Both the above images (Figs. 6:5 & 6:6) appear to depict the different types of headgear but may simply be extreme variants. This is difficult to verify as few extant examples are available in museums collections. As none have been discovered that can verify these extremes of style, experimentation with reconstructions would present an opportunity to explore this speculation. It is evident that until the use of photography a clear and accurate method of establishing the precise character of a soldiers undress cap from contemporary imagery is speculative. Several bonnets in the style under study and in UK museum collections (see Appendix B) have common elements; they are all knitted in the form of a blue beret, although all differ in the type, colour and size of the headband. The shape may have been achieved by blocking, shrunk to fit on a wooden hat block and most of these examples have a cotton or linen lining to them. All appear to have been shrunk and felted to one degree or another. The bonnet attributed to the 33rd Regiment of Foot is so well felted, that only with close examination is it possible to identify the knitting. It is one of the few extant bonnets believed to be from this period can be found at the Regimental Museum of the Duke of Wellington's Regiment in Halifax (Fig.6.7).

Fig. 6:7, Knitted Bonnet, Duke of Wellington's Regimental Museum, Halifax.

Through the extensive use of photography in the Crimean War (1853–56) it is possible for the first time to have a clear and extensive view of the use of the Kilmarnock bonnet by the British Army. Between 8th March and 26th June 1855 Roger Fenton visited the Crimea (Wood, 2003, p.284) and made in excess of 337 images (Hannavy, 1975, p.62). These images depict aspects such as panoramas, camp scenes and groups of individuals. By studying the photographic record of the army besieging Sebastopol it is possible to establish the appearance of the British Army on service. From these images it is apparent that the full dress shako prescribed for the majority of the infantry, has been almost completely abandoned in favour of the Kilmarnock bonnet. Of note is a study by Fenton depicting a private of the 28th foot in full marching order; he is complete and correct in all aspects of his uniform and equipment except that he is wearing the undress bonnet.

Fig. 6:8, Roger Fenton, *Private of the 28th (North Gloucestershire) Regiment of Foot in full marching order, 1855,* National Army Museum, London. (Acc. No. NAM. 1964-12-151-6-15)

Again no extant examples or written records giving details can be found, and as such the photographic evidence is essential to understanding. The bonnet, worn by the Private of the 28th (North Gloucestershire) Regiment of Foot (Acc. No. NAM. 1964-12-151-6-15), is characteristic of the type depicted in other Fenton photographs with its distinctive 'pork-pie' (Oakes-Jones, 1938, p.68) shape (Fig.6.8).

A further example from the photographic record shows the remains of the Light Company of the 38th Regiment of Foot (Fig. 6.9). This company is paraded in what can be considered to be a formal and correct manner. This formality can be identified by the rank and file who are smartly and uniformly paraded in the stance of attention. Not only is the company drawn up in the regulation two ranks in close order, but it is arranged by the size in order that all men appear a uniform height. On the right of the company (the viewer's left) in the front rank can be seen a sergeant, his correct place when the company commander is out of the ranks. Next to this sergeant is a bugler, again in his correct place. Second from the left of the image is what appears to be a colour sergeant, probably the senior non-commissioned officer of the company stood correctly to attention with arms advanced. To the far left of the image is an officer who could be expected to be adopting a more casual stance. All these point contribute to formal occasion. The exception to this 'correct' appearance is the use of the Kilmarnock bonnet with full dress; in this case it is worn at in a uniform manner.

Fig. 6:9, Roger Fenton (1855), *The Remains of the Light Company of the 38th Regiment, 1855,* National Army Museum, London. (Acc. No. 1964-12-151-6-18)

It is with these photographic images that it is possible to gain a significant insight into the character and general use by the military, of the Kilmarnock bonnet.

International Appeal

On the international stage the use of Kilmarnock bonnets is apparent from its use in the United States and Canada in the first half of the nineteenth century. Although few extant bonnets survive several are recorded by artists of the period and reveal the popularity of a knitted bonnet not only with the Europeans, but also with native tribes. The bonnets were imported into North America by the Hudson Bay Company as articles of trade and have been identified as being used in diverse areas of North America. Several illustrations have

been revealed depicting Native Americans and Europeans clearly wearing knitted hummel bonnets.

The work of Gustav Sohon from around the year 1850 depicts Native Americans wearing customised bonnets that has parallels with practices adopted by Highland Troops.

Fig. 6:10, Gustav Sohon, *sketch Adolphe a Flathead Chief* Smithsonian Instuition, Washington

The above sketch of Adolphe a Flathead Chief from the North Western United States (Fig. 6.10) clearly depicts a bonnet with its toorie. The headband has been decorated with fur and perhaps beads. This practice is reminiscent of that adopted by highland troops serving in North America at the time of the Seven Years War where highland soldiers decorated their bonnets with feathers and pieces of fur (Gale, 2007, p94).

Fig. 6:11, Gustav Sohon,*sketch Iroquois Guide Aeneas,* Smithsonian Instuition, Washington.

The above illustration, again by Sohon (Fig. 6.11), gives a clearer view of a hummel bonnet with its distinctive diced border. Although unstiffened it appears to be constructed in the same way and resembles the bonnets from the Calotypes in their unlined form. The peak added to the bonnet is something not normally seen on the commercially made Kilmarnock bonnets and may be a local addition. Within the British Army the peak was not seen in home stations, but at times was adopted on service. Ignoring a general order, dated May 1851, the 74th Highlanders on service in South Africa wore a '…broad leather peaks fitted to their forage caps. (Barthorpe 1987 p.41). Again, this presents a parallel practice adopted by Highland troops and North American natives. Whether this practice evolved independently of European influence, was copied by the Native Americans from Europeans, or copied from the Native Americans by Scottish Troops is a subject of further investigation.

Fig. 6:12, Cornelius Krieghoff, *Winter Camping Scene c.1850s-1860s* Watercolour sketch, Copy from the Dick Institute ,Killmarnock.

The popular Canadian artist of the nineteenth century, Cornelius Krieghoff, made numerous studies of North American society in the Quebec and Montreal areas. In the above *Winter Camping Scene* (Fig. 6.12) it is possible to identify three individuals in the traditional knitted bonnet, in this case two in the expected blue and one in a distinctive red colours.

Fig. 6:13, Image by Father Nicolas Point. Probably from Montana or Idaho c. 1840s. Image from the Dick Institute, Killmarnock.

In the above image (Fig. 6.12), probably of a native of the Montana or Idaho region of the United States, it clearly depicts a style of Stewarton bonnet as seen in the collection of the Dick Institute, Killmarnock (Appendix B Art. Rec. 1). The distinctive blue and red diced border, blue top and red toorie, in association with the flat shape demonstrates a clearly defined similarity. Again, this bonnet appears to have a peak attached.

Continuing Use

On the 28th March 2006, following the House of Commons Defence White Paper, *Delivering Security in a Changing World*, the Royal Regiment of Scotland was formed. Included in this amalgamation of Scotland's Highland Regiments was the Gordon Highlanders. Still worn by the new regiment, is the descendant of the hummel bonnet, the Glengarry. Despite its flat form, it is the current version of the hummel bonnet under study. It retains most of the major characteristics of the hummel bonnet including its distinctive colours, diced border and toorie. They are made to a traditional hummel bonnet shape but lined and blocked to the flat Glengarry shape. They are machine knitted with Merino wool, and as such are extremely precise in their dimensions, quality and finish, and are much softer to the touch.

Fiq. 6:14, H.M.The Queen presents new colours to the Royal Regiment of Scotland, Edinburgh, 2nd July 2010. http://www.army.mod.uk/infantry/regiments/SCOTS.aspx

The continued use and popularity of the knitted bonnet is not clear, but it would suggest that its survival may be due to its traditional design, attractive appearance and practical nature.

Summary

It is apparent that the hummel form has endured for a considerable period and has undergone several developments through this time. The knitted form of the bonnet contributes to its ability to be shaped in to a variety of forms using blocking whilst the knitting and felted qualities provide a tough but durable form. It is likely that such bonnets can tolerate the hazards of service whilst been capable of being brought back to condition with minimal interferences. It is an enduring form and it is notable that its adoption and adaptation by native Americans may well have acted to stimulate the development and adoption of this form amongst British Soldiers.

It is reasonable to suggest that the hummel bonnet is an exceptional survivor. Despite its development over several centuries, it still retains its basic features and function. The enduring style of the hummel bonnet along with its apparent flexibility of form might simply be seen as a common feature of any tradition, but the specific design elements of the hummel bonnet are likely to have contributed to its specific developmental journey.

Chapter 7
ANALYSIS OF THE HUMMEL BONNET

Introduction

Photographic, literary and other records have produced much information about the style, form and use of the hummel bonnet; however, they have produced little about the materials and methods of construction. This is not unusual and reflects the art-historical approach that has dominated the study of 'things' for too long (Pfaffenberger 1992, p.502). It is argued here that any understanding of style or form must acknowledge the role of materials and production method as it is through these that such structural properties arise (Ingold 2007). Further, to explore the context and means of production is to resist a broader trend in material culture studies which driven the focus of scholars overwhelmingly towards processes of consumption rather than production (Miller 1995).

It is then an aim of this study to undertake a detailed study of the production of hummel bonnets. Such an approach integrates information gained from the examination and investigation of extant and related examples but also engages with a process of 'experimental' investigative reconstructions. This programme of research acknowledges many of the points made by Coles in his 'rules of the game' and makes significant effort to explore authentic materials and techniques.

The concept of the *chaîne opératoire* is well-rehearsed in archaeology, especially within the area of craft production and ancient technology (Dobres 2000). It is a concept which carries with it a sense of unfolding drama which gathers around an object as it is brought into being and on into life. Central to the *chaîne opératoire* is the socialised skilled agent and the techniques and choices that they exercise (ibid). For the anthropologist the *chaîne opératoire* can be addressed through careful field observation where the skilled individual can be watched or even addressed. For the archaeologist however such privilege is absent. Instead it is through the object, and sometimes the remains of production, that the details of technique and material choice and manipulation are understood. This requires, then, an intimate knowledge of both material and object, and, if the archaeologist is to even consider bodily posture and technique then a familiarity with how skill and material is united is required. The most appropriate means to the archaeologist is through the use of ethnography coupled with experimental reconstruction.

In this study the principles of experimental archaeology (see above) are used to guide the reconstruction of the object under study. As many characteristics of the original as is possible are also used to inform practice. Extant examples reveal probable models on which to identify materials and methods of construction. These have been catalogued in Appendix B. Extant artefacts give a direct link with the manufacturer and their origins. Today most who are familiar with knitwear may only have experienced the results of machine knit and maybe with the use of synthetic or mixed fibres. For the period studied here, the use of machine knitting is inappropriate and therefore we must think of knitting as a 'hand made' product, it is in other words very much a technique of the body.

The Analysis Process

The analysis process is necessary to establish the steps necessary to make decision about reconstruction. This has been undertaken largely through the examination of extant examples of knitted bonnets. The process took the following steps:

- Investigation of contextual evidence
- Identification and examination of extant bonnets
- Analysis of methods of construction
- Analysis of materials used
- Synthesis of evidence and identification of a reconstruction

Contextual Evidence

Fundamental to the understanding of the contextual evidence is to identify the difference between the hand knitted and the machine made bonnet. These differences are apparent on physical examination and are perhaps best illustrated by the images below (Figs. 7:1 & 7:2). These images show examples of the Kilmarnock bonnets used by the 93rd Highlanders c.1854 and the Argyll and Sutherland Highlanders c.2010, one the successor of the other.

Casual observation of the images, of machine knitted bonnets reveals a different appearance to the hand knitted variety. The machine knitted is far neater, regular and softer to the touch. These differences demonstrate themselves through the use of softer yarn types, the change from natural to chemical dyes, and the relatively irregular method of manufacture seen with hand knitting. These differences are typified through comparison of bonnet details. Examination of the hand knitted red and white cheques reveals rectangles produced by four rows of four stitches producing quite irregular rectangles. This is in comparison with the machine knitted version produced with eight rows of four stitches producing a near perfect square. This is therefore a study of a different category of bonnet and any relationship between the current, machine knitted, item is of little use.

Fig. 7:1, Machine knitted Glengarry produced by Robert Mackie & Co., c..2010. Regimental Museum of the Argyll and Sutherland Highlanders, Sterling.

Fig. 7:2 Hand knitted Glengarry, c.1854, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling.

The use of hand knitted bonnets by the military is supported by the author's investigations in the collection of numerous regimental museums. The few examples of hand knitted bonnets have all been located (examples identified in appendix B) and have been dated via their style, pattern or provenance, and suggest that they date from a period that is pre c.1860. Numerous examples of knitted bonnets found in museum collections have been discovered and all are attributed to the late nineteenth century or after. These changes of materials and method of manufacture identified by the author are supported by the literary evidence. It is generally acknowledged that the production of bonnets was done by hand, although highly

regulated, and was a cottage industry (Bennett, Mackie, Buckland, Rutt, Hartley & Ingilby). Rutt in his definitive work on the history of hand knitting (1987, p.128) identifies that bonnet manufacturing continued to be done by hand until around 1870, after which it '…declined and disappeared.'

This change in manufacturing methods coincides with the introduction of knitting machines and examples of applications for patents include an 'A*pparatus for the Manufacture of Scotch bonnets, etc* (Russell's 1881). These machines resulted in not only different techniques of manufacture, but demanded the use of different yarns (Mackie 1913). In his paper delivered to the Incorporation of Bonnet Makers and Dyers in 1933, Hugh Mackie (Mackie, 1933) states that 'The real Highland bonnet was a hand-knitted article…' and goes on to say that 'The bonnets of today are all machine made of Saxony Wool…'. He goes on to specify that the finishing processes were also done by hand leaving a distinctive coarseness, in comparison with the smoothness of machine finishing.

The move to Saxony (Marino) wool, with its straighter and longer fibres, facilitated yarns that could be used to produce the finer and more uniform finish that may have been desired. Through the use of machine, and therefore factory production, manufacturing could centralise production methods, procurement of yarn, and standardisation of product. It would also be safe to assume that this process of manufacture would deliver a cheaper product or allowed for a larger profit for the factory owner.

However the subject under investigation is the hand knitted hummel bonnet and it is appropriate to make investigation into the hand knitting methods appropriate to the subject under study. Discussion with experienced knitters familiar with modern knitting techniques reveal that the craft skills of knitting needed to produce early 19th century bonnets are well known and still practiced to this day. Through the photographic record knitters have managed to identify knitting elements such as casting on , increasing and decreasing, casting off, etc. all of which have been identified and described in chapter 8.

The Physical evidence

Extant examples studied were selected on the basis of being hand knitted bonnets which meet the same general character and date depicted in the calotypes. These are listed in more detail in (see Appendix B). The results have been compiled with accession number, description, dates, notes and photographs.

Locating original hand knitted bonnets for study has proven to be an exhausting task with a need to develop relationships with various collections in the United Kingdom. A major problem encountered was the lack of understanding by museums staff of the nature of the bonnets under study. The skill of the knitters and the quality of the felting can easily obscure the knitted element resulting in many such articles being misclassified. Discussion and face to face contact with museums staff have helped identify the subject under research. As each bonnet has its own characteristics, dating is often difficult to establish, so wherever possible the researcher relied on examples with good provenance.

The Dick Institute in Kilmarnock holds two examples in its collection, both of which do not appear to be of a military nature but are hand knitted and are representative of the style. These were:-

- A Stewarton (Kilmarnock) bonnet, collection of the Dick Institute, Kilmarnock. Acc. No. 1982/0028/0002
- A Stewarton (Kilmarnock) bonnet, collection of the Dick Institute, Kilmarnock. Acc. no. 1913/0006/0000

Two further examples of the Kilmarnock bonnet were found in the collection of the Dumfries Museum and Camera Obscura, Dumfries. These were again of a civilian nature and were:-

- A Kilmarnock bonnet. (Dumfries and Galloway Council). Acc. No. DUMFM:1953.169 dated pre 1783
- A Kilmarnock bonnet. (Dumfries and Galloway Council). Acc. No. DUMFM:0207.36

Four examples have been particularly valuable which have been traced to individuals who took them to the Crimean War in 1854. Each one has a different shape and decoration, but have similarities in their materials and method of construction. These were:-

- Diced Blue Bonnet. c.1854, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. A793
- Feather Bonnet and Hackle c 1854, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1
- Glengarry, c.1854, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.0007a
- A Pillbox Cap,c.1854, 2nd Royal North British Dragoons (Scots Greys).Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle. Acc. No. 21215

Others, such as the bonnet in the collection of the Duke of Wellington's Regiment, are difficult to date and even attribution to a specific regiment is difficult to establish, but this example is generally considered to be a knitted cap used by the 33rd Regiment of foot in the first half of the 19th century. Materials and method of construction show a clear similarity to ones with established provenance.

- Knitted Woollen Cap, first half of 19th century, Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174

A major source of original bonnets is the Scottish War Memorial Museum in Edinburgh Castle. At the time of researching this museum was involved with a major reorganisation as part of the Royal Museums Project and access to collection is unavailable, although examples of bonnets that were on display were identified by the curator. Information on the reserve collection was not available, although access to this collection will be allowed as soon as circumstances permit.

Construction Methods

Through observation of extant examples a number of characteristics relating to materials and technique have been identified. The form of knitting identified varies very little from example to example although the finished bonnets may appear very different in their final form. All examples start from the top centre and work out to the headband using a system of knitting in the round. This is done by a minimum of three double ended needles set in a triangle, the knitting is then progressed in a single direction (anti clockwise for a right-handed knitter) using a fourth needle. It is almost impossible to start knitting in the round from anything other than a circle. This inevitably leaves a small hole which is almost always hidden by a *toorie* or tuft. This toorie is a distinctive element of all Kilmarnock bonnets studied.

The knitting follows in a spiralled form with stitches being added at intervals to increase the total numbers stitches on the needles. This simultaneously increases the circumference and the diameter to produce a desired flat bonnet top.

The flat disc shaped top is produced using care, the negotiation of yarn tension and stitch density, and the general technique of knitting in the round. The materials also play a role with the particular ply and character of the yarn exerting its influence in tandem with that of the knitter. It would be difficult to achieve the desired shape through blocking and shrinking processes only. Through the knitting process a subtle pattern emerges on the bonnet top. Careful study of the top reveals a series of segments similar to the slices of a pie. This is

certainly due to the method of increasing the number of stitches at regular intervals. Identifying knitting techniques is difficult, due to the heavy milled nature of the materials, but observation of the cap in the collection of the Duke of Wellington's Regiment revealed twelve sections. The Glengarry attributed to the Argyll and Sutherland Highlanders, despite being in a flat form, clearly displays these sections in the form undulations to the side panels. When the required diameter is reached the number of stitches can be maintained, as in the Royal Scots Grey cap, or reduced to give a shape resembling a beret. At the required point the stitches are continued without any increase or decrease to give a distinctive tubular shape to the head band. This headband varies in depth from little more than a small edging strip to the deep border seen in the calotypes of 1846.

Fig 7:3, Feather Bonnet and Hackle c 1854, detail, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1

In the military examples examined the decoration varies but is always regular. For instance, a Black Watch bonnet examined (Fig.7:3) has a typical regular diced pattern produced with three squares vertically and 24 squares horizontally around the headband. Each square of dicing appears to be 8 stitches x 8 stitches. Therefore as the bonnet has 24 squares of dicing in alternate colours, the whole border is 224 stitches in the round.

Fig 7:4, A Pillbox Cap, c.1854, 2nd Royal North British Dragoons (Scots Greys) detail. Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle. Acc. No. 21215

Despite being smaller and having distinctive Vandyke (zigzag) decoration, the cap attributed to the Royal Scots Greys is manufactured using the same methods (see fig. 7:4). In this case the diagonal bars of the decoration are each 8 stitches run simultaneously vertically and horizontally. Therefore 14 chevrons each of 16 stitches give precisely 224 stitches. This suggests that a very definite following of pattern (oral or written) or at least an appreciation of the mathematical 'rhythms' that underpin such knitted design.

There is a need for the knitter to maintain a regular shape on the top of the bonnet to enable the disk like shape seen on all the examples to be fashioned. This is done through increasing the number of stitches in successive round of stitching. The decorative, or diced, border in all examples examined is done to a regular number of stitches. It is therefore necessary for the number of stitches in the final row in the bonnet proper to be equal to the number in the border. The increase in stitches to take the top to its widest desirable point may then have to be decreased to meet the precise number of stitches needed for the border. With this in mind, the stitch calculation for the whole bonnet must be carefully worked out from the start and is certainly not something that happens by coincidence or guesswork.

A more detailed study was conducted on the bonnet belonging to the Duke of Wellington's Regiment. This study revealed it to be a well made item. The tightness of the knitting and shape of the finished bonnet is enhanced through the heavy milling and shrinking onto a block. This allows the wool to gain a solid nature and uniform shape. This finished shape is controlled and supported through a linen lining. These characteristics are common to all the military bonnets studied.

Fig, 7:5, Pins used to aid the counting of stitches. Knitted Woollen Cap, first half of 19th century, Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174

Establishing the precise number of rows and stitches in a bonnet is relatively easy when dealing with repetitive patterns such as a diced border. By identifying the number of stitches in a coloured block and multiplying this by the number of blocks, the quantity of stitches can be calculated. With the larger monochrome areas such as the top, this number is not always apparent and is difficult to identify. In an effort to calculate he number of stitches in areas of the knitted woollen cap, (Regimental Museum of the Duke of Wellington's Regiment. Acc.

No. DWR.174) it was found necessary to place pins at every ten stitches around the widest part and at the bottom of the headband.

Fig. 7:6, Pins used to aid the counting of stitches. Knitted Woollen Cap, first half of 19th century, Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174

Traditionally the hummel bonnet is stretched on a disk. Described as being "…put on boards,…" (Hartley & Ingilby, 1951 p.118), giving them their beret style shape. The bonnet under study is referred to by Mackie (Mackie, 1913, p.5) as "Straight Ups" and "…being Forage Caps or Ghurkha Caps…" for the army. To achieve the distinctive straight up shape the traditional board has to be substituted with a different shaped block.

Fig. 7:7, Left, Knitted Woollen Cap, Regimental Museum of the Duke of Wellington's Regiment (Acc. No. DWR.174), Right Bonnet block, author's collection.

The above illustration with a block adjacent the original bonnet suggests that this may be an appropriate size and shape to give a bonnet its distinct form. Of note is the fact that the

bonnet is free standing without any modern packing or internal support and still maintains its distinctive shape.

Materials

Observations of original bonnets with a diced border give an insight into the yarn fibres and their relation to their finished colour. It is apparent on surviving examples, and supported by the calotype images, that the white (natural creamy white wool shade) sections are prone to stretch more than the remaining coloured sections. This effect is not seen on later machine produced bonnets. A supposition, which may only be proved through experiment, is that it is due to the use of different yarns. Typically the bulk of the bonnet is produced with harder but inevitably darker shade of natural yarn. This darker shade of yarn would be hidden by any dying and so the natural colour would be irrelevant. But to produce the white sections it would be necessary to select a much more suitable (whiter) yarn, which the researcher suggests, is of a finer quality with less inherent strength. It then follows that with the fulling and shrinking process over a block, the stronger fibres would contract at the expense of the weaker. This would in effect leave the weaker (white) knitted squares distorted.

Fig. 7:8, Yarn and knitting samples in comparison with extant bonnet (Acc.no. DWR 174)

From handling and inspecting these extant bonnets it is apparent that the fibres used were very coarse and were capable of being “waulket” or milled to such a degree that the whole article was one solid piece. Through being allowed to handle the nine extant bonnets (listed above) without protective gloves it has allowed the sense of touch to examine the yarn. The yarn is very coarse to the touch and the texture is somewhat coarser than a sample of Welsh Mountain Yarn or 2ply carpet yarn. The garments are also relatively heavy weighing 175g (just over 6 ounces) in the case of the one in the Duke of Wellington’s Regimental museum. This example, and all the other examples that permitted testing in this way, proved to be resilient and will readily spring back to shape with ease. The quality of the knitted material is quite solid with an unexpected thickness.

In order to evaluate the type of commercially available yarn appropriate for the reconstruction a system of controlled samples were made in order to make comparisons with this extant example. An extensive number of yarns were examined, initially by simply feeling and comparing the thickness, twist and above all texture; only a limited number were found to have any similarity to the extant examples.

A number of possible yarns were knitted into samples and felted to allow comparison to be made to the bonnet attributed to the Duke of Wellington’s Regiment (Acc. No. DWR.174).

These possible samples included:-

- Donegal Chunky Tweed (Debbie Bliss from Kilcar, Ireland)
- Welsh mountain sheep yarn (from Blacker Designs, Launceston)
- Three examples 2ply Carpet Yarn, (Axminster, Old stock from Huddersfield University)
- British Breeds Swaledale Aran 3ply (From British Breeds Yarns, Halifax)
- Bluefaced Leicester Aran (from British Breeds Yarns, Halifax.)

Through comparison with the extant example, the yarns selected were the Swaledale Aran for the elements to be dyed blue red and green, the Blue faced Leicester for the white elements. These two breeds of sheep proved to have characteristics that make them an appropriate choice for the hummel bonnet.

The Swaledale takes its name from the area of North Yorkshire. This breed is closely related to the Scottish Blackface and the Rough Fell breeds (Ryder 1964) and as early 19th century accounts record the wool from ‘… Blackfaced sheep…’ was considered to be of a coarse

variety (Hartley& Ingilby,1951 p.86) . As the Swaledale has this characteristically coarse fleece, together with a degree of kemp fibres, as identified in several of the extant bonnets, it was considered an appropriate material for the reconstruction. As this fleece is normally off white in colour, it was suitable for dyeing but unsuitable for the white elements. By comparison, the Blue Faced Leicester is a traditional long wool breed of which originates from Northumberland. This fleece is considerably lighter than the Swaledale, making it suitable for the white areas of the bonnet

The Example Selected for Reconstruction

The bonnet selected from the 1846 calotypes, can be seen worn by the Sergeant in the image *Sergeant and Private of the 92nd Gordon Highlanders* (Fig. 7.10). The same individual can also be seen in the background to *92nd Gordon Highlanders and their wives at Edinburgh Castle* (Fig. 7.9). This individual can be recognised in the two images through his distinct facial characteristics, similarities in uniform and his non-regulation sash.

The bonnet worn by the sergeant in these images can be clearly seen enabling form and considerable detail to be observed. The fact that it is worn by a senior non-commissioned officer makes it a favourable model to use as a senior non-commissioned officer would be expected to set a standard for dress. Despite the irregular ways many of the other ranks wear their hummel bonnets, this sergeant wears his at the same angle as the individuals in full dress. The bonnet appears symmetrical and regular suggesting that this was a desirable shape required by the individual or more likely, the army authorities.

The two images present a view from two angles which allow for a three dimensional study enabling the researcher to identify the bonnet shape which complements the information collected on extant examples, and can be used to support a reconstruction for comparison with the calotype images.

In order to study the bonnet, and therefore block, shape images of this individuals head have been cropped and enlarged to an estimated full size. A scale was applied to the image and the basic shape and discernible characteristics were highlighted with lines to regularise the blurred aspects of the Calotypes. This blurring or lack of crispness is characteristic in this method of photography.

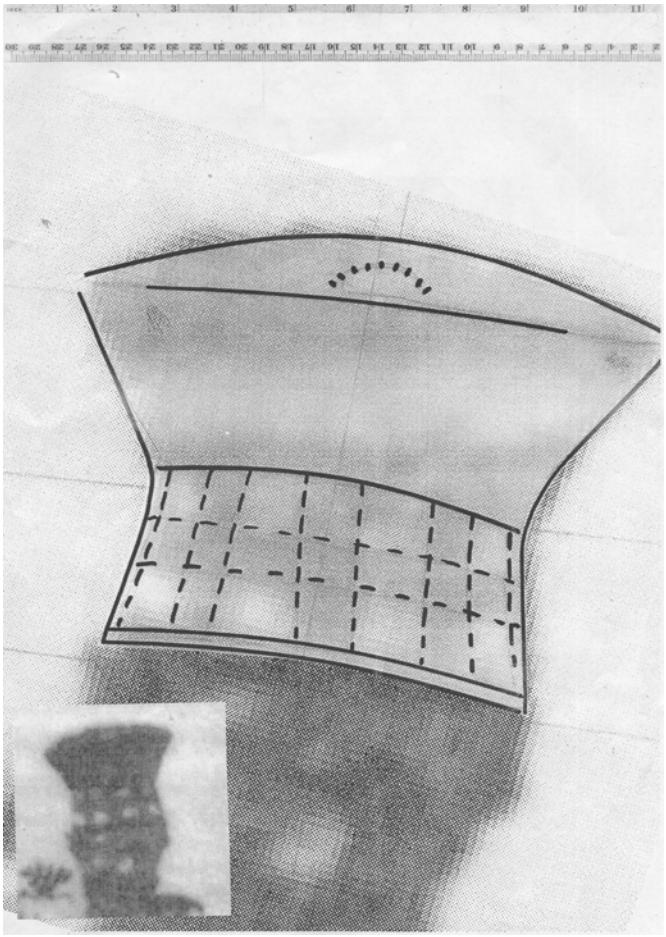


Fig. 7:9, Sergeant's head enlargement from image *92nd Gordon Highlanders and their wives at Edinburgh Castle.*

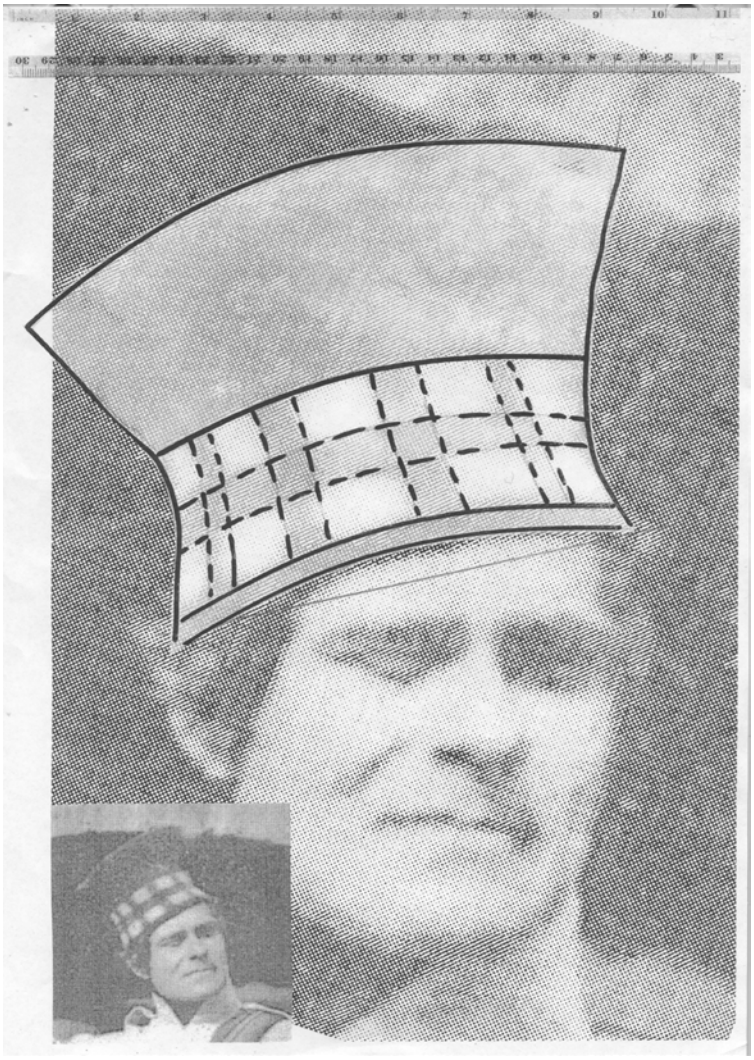


Fig. 7:10, Sergeant's head enlargement from image *Sergeant and Private of the 92nd Gordon Highlanders.*

These two images allow us to see the same bonnet from different perspectives. The bonnet is worn at an angle, which would appear to be intentional as the bonnet is worn in the same manner in both images. The overall shape is seen as being angular and upright. This suggests that the bonnet has stiffness to the sides allowing it to stand an estimated six inches in height with a three inch high diced border. This corresponds to the general size of bonnets examined and is almost precisely the same height as the hummel bonnet contained in the base of the feather bonnet attributed to Captain Sir Peter Arthur Halkett (Regimental Museum of the Black Watch, Acc. No. 1078/1)

The diced border appears to be stretched and distorted in the manner identified on extant bonnets although the fabric may be stretched around the head to compound this distortion. This stretching may also explain the distinct tapering appearance of the headband.

The toorie can be identified in Fig 7:9 as a light coloured mark on the image and would appear to be sat in a concave dip on the top of the bonnet. This would suggest that top of this specific bonnet is sagging and may lack any of the stiffness demonstrated in the upright sections. This also demonstrates that it conforms to the methods of lining and the convex nature of the block common to several of the extant bonnets.

Summary

Through the process of investigation it was concluded through synthesis of the evidence, the bonnet to be reconstructed would be that depicted in the calotype enlargements (see figs 7:9 & 7:10). This decision was arrived at through comparison of the materials original fibres to contemporary selected yarns, a study and identification of common methods of construction, and a study of the available contextual evidence.

Chapter 8

THE RECONSTRUCTION

Untangling the yarn: Identifying production sequences

As with any attempt to (re)construct and object based on historical and archaeological data it is necessary to identify and characterise the various production processes, and especially the order or sequence in which they are arranged relative to one another. The production sequence for the hummel, at least the major stages, is fairly self-evident (see below). However, certain tasks or stages are difficult to place in the production process as they might have been added at various stages (i.e. the liner – see fig. 8:20). Such ambiguity therefore formed a focus for the experimental aspect of the study. If specific observations could support the order of production then significant conclusions could be drawn. For instance whether a liner was added pre or post knapping might leave a particular trace with the ways stitches sat against the knap and might allow different production traditions to be established amongst different bonnets which otherwise might be superficially similar. It was then with such thoughts in mind along with a more general sense of enquiry that the experimental investigations proceeded. What follows is an overview of the sequence of bonnet construction.

For the hummel bonnet the initial stages must be concerned with the selection of yarns. As the bonnet under study is made of contrasting and well defined colours it is apparent that the bonnet cannot be dyed once in a knitted state. It is therefore necessary for each of the several colours of yarn to be dyed prior to knitting. Likewise, shrinking to the block and the felting process can only be accomplished once the bonnet has been knitted. Similarly, it is only when the bonnet has been shrunk and felted that is develops a stability that makes it capable of tolerating being brushed (teased) and the knap cropped.

Making a lining can be done at any stage, as both the liner and the shrunk knitted bonnet are intended to conform to the block, but at what stage it is stitched into the knitted bonnet is not clear. It must be done after the bonnet has been shrunk and has become stable, but as to whether it is done before or after finishing is not obvious. As multiple rows of stitches are necessary to fix the liner, and these may affect the finished surface, this may be problematic. With this in mind the following sequence was used. The shrunken bonnet was brushed and pressed on the block, the lining was fitted to the inside of the bonnet, and a further and more intensive finishing process applied.

The final element was the application of the toorie. This was done last for several reasons. The important processes of blocking and finishing can be obstructed by this object. Any work done to the inside of the bonnet, particularly when fitted on the block, will affect the finished shape. If for any reason the bonnet does not shrink with a perfect set of concentric circles to the top, the toorie can be applied to disguise this.

Yarn Types

From handling and inspecting original bonnets it is apparent that the fibres used were very coarse to the touch and were capable of being "waulket" or milled to such a degree that the whole object was one solid article. Precise information about yarns has been difficult to find but comments such as "…the sheep who produce the wool [in the 1830s] differ very little from those that roamed the Lowlands four hundred years ago." (Mackie 1913) led to a confidence that modern yarns, appropriately selected, could be used for the reconstruction. Although it would be desirable to make extensive examination of original bonnet fibres and identify specific yarns for the reconstruction, pragmatism and the constraints of this enquiry demanded a pragmatic approach.

Selecting a yarn with the appropriate characteristics involved making test samples using a series of machine spun all wool yarns. These samples were knitted into rectangle samples using the same knitting stitches as used on the original bonnets. These samples were then shrunk and milled to allow them to reveal their qualities and allow comparisons made to extant articles.

As identified in chapter 7, the yarns selected were the Swaledale Aran Blueface Leicester Aran. The Swaledale Aran proved to be the most successful and revealed the qualities noted in the original bonnets. This yarn, when milled and shrunk, became tight and solid and had the coarseness of the original. The shrinkage was greater than expected with a loss of 25% in both length and width. This amount of shrinkage is desirable as it gives a thicker and more stable finished material. This yarn is pale grey in shade, but is capable of being dyed the appropriate colours needed for the bonnet, blue, red and green. The white areas on the extant bonnets examined revealed it to be both very light in colour and to be of a finer and softer type of yarn. Tests with Blueface Leicester yarn were comparable with the white elements of extant bonnets.

Matching Colours

Certain dyeing characteristics are apparent for the year 1846. The dye types in use were all within the category we now called natural. It was not until synthetic (aniline) dyes were first discovered in 1856, that many natural dyes were replaced. It is therefore evident that all dyeing was done through natural pigments. As the bonnets are knitted in a number of colours (blue, red, white and green) it is apparent that the yarn is dyed prior to being knitted up as opposed to being *dyed in the piece*.

It was considered important to retain as near as possible the original characteristics of the original object under study. The use of indigo is identified in numerous sources (Mackie 1913 & 1933, Hartley & Ingilby 1951, etc.) and it was considered not only authentic and appropriate but an evident expedient to achieving the correct colour. Indigo has been described as '...the world's only natural blue dye…' (Balfour-Paul, 2011, p.10-11), although numerous other natural sources are known such as elderberries, logwood and birch bark, (Lewis 1983, p.116) though few produce its bright and fast colour. Indigo has a distinctive blue/black colour that is characteristic of the hummel bonnet. It has been in use as long ago as 2,000 BC and has been identified as being used to dye mummy wrappings. At the time that the bonnet under study was made, the indigo was probably imported from Bengal as part of the trade dominated by the Honourable East India Company.

As a matter of expediency, it was decided that the method of dyeing the yarn for the remaining colours would have to be done through the use of modern commercial dyes. These would accurately match the original shades without experimentation and the extra research necessary to reconstruct these practices.

In this reconstruction of an object that no longer exists, a calculated guess needs to be made on the shades of colour to be used as precise matching of the colours of extant objects presents problems. Shades vary considerably, not only at the dyeing stage, but through changes made over the years through elements such as exposure to sunlight, cleaning or natural deterioration. An extreme version of this is the Jacket of Lieutenant Stansfield of the 19th Foot dated 1820–28. The 19th Foot or The Green Howards as they are more often called, take their name from an early commanding officer, Colonel Howard, and the colour of their facings, green. While on service in Ceylon in the early part of nineteenth century the facings of Lieutenant Stansfield's jacket turned from a bright green colour to a dark blue (accession no. RICGH:728, Green Howards Museum, Richmond.). With this in mind it is therefore necessary to be selective with the colours used.

Green

Establishing the precise dye used for the green used in the dicing peculiar to 92nd Gordon Highlanders is problematic as surviving woollen fibres have been subject to fading or bleaching, and the original shades are no longer evident. It was therefore necessary to make a calculated guess based on a green found in a section of government tartan attributed to the 93rd Highlanders and reputedly worn at the Battle of Balaklava in 1854. Provenance with any early tartan fabric is debatable, but this sample tartan strip (Appendix B no.12), has been with the Officers' Mess of the Argyll and Sutherland Highlanders since the nineteenth century and tradition states that it war from the field of Balaklava. Coloured fibres from this tartan were identified as green Pantone shade 19/4820TPX and also a blue Pantone shade 19/4019TPX

Red

The red may be illustrated with observations on the soldiers' red coat. With red shades, not to be confused with the bright scarlet of officers' coats, similar problems of establishing the correct shade are encountered. Red used for common soldiers was a dull colour sometimes described as Brick Red and could vary in shade from '…brownish pink to a deep plum…' (Boag, 30.7.1971), although the majority of coats seen are a dull mid-range red colour. A shade of red was selected by matching the colour of a fibre sample from a Crimean war jacket (see Appendix B, no.10) and was identified as Pantone shade 18/1353TRX

Blue

Numerous shades of blue bonnet have been studied and these all vary in shade particularly among the civilian types. Within the military bonnets the shade varies from a black blue to a rich mid blue. Several samples were selected for matching that were in this range. A sample from Crimean War Kilt (Appendix B no.12) was identified as Pantone shade 19/4019TPX and a simple of bonnet yarn from Dumfries (Appendix B no.11) was identified as Pantone shade 19/4010TPX.

White

As already mentioned the white yarn would be selected from a fleece which has the characteristics of strength and a light cream colour.

Dyeing with Indigo

Traditionally all blue bonnets are dyed with indigo, as this was not only the preferred method of dyeing, but it was also strictly regulated. In 1756 legislation was introduced to ensure the

use of indigo as other dye stuffs will '…stand neither wind nor weather,..' (Mackie, 1913, p.3). All the extant blue bonnets studied support this, as all retain their strong colour, characteristic of the use of indigo.

Mackie was the son of a master dyer in the bonnet industry around Stewarton; he describes aspects of the dying process: "The bonnet makers in Stewarton in those days dyed the wool mostly themselves. They dyed them in indigo or black and generally had a small dye house at the back of their houses for that process." (1913 page 3). He then describes the "…blue dye liquor was heated and prepared with indigo…" and "The wool when it had been taken the indigo, was carried to a running stream and washed in baskets till it was perfectly clean and sweet smelling".

Traditional methods of dyeing refer to the use of stale urine as a mordant to give adhesion, or set, between the dye and substances to be dyed. Advice from experts in the Textiles Department at the University of Huddersfield was to use a tried, tested, and *safe* method of mordant but still retaining the use of Indigo to achieve the correct colour. The recipe selected for dying of the indigo was taken from a recipe by Tracy Kendall (Kendall 2003, p72). This method would allow the distinctive indigo shade to be reproduced with no discernible difference in the nature of the yarn. The recipe prescribes the following ingredients:

- 9 litres of water at 50 degrees centigrade.
- 200g salt
- 50g indigo
- 100ml warm water
- 12g of sodium hydroxide solution (NaOH, also known as lye or caustic soda), in solution ; 72 degrees Tw (.Tw =Twaddle's Hydrometer) (O'Neill 1869 p.275-6)
- 1 litre warm water
- 35g sodium hydrosulphite ($Na_2O_4S_{2,,}$also known as Sodium dithionite), a white crystalline powder

To prepare the indigo vat the salt was first added to the 9 litres of water at 50 degrees C. In a separate container the indigo was mixed with the 100ml of warm water to form a paste. The sodium hydroxide was placed in a separate container containing 1 litre of warm water and dissolved. The sodium hydroxide solution was then added to the 9 litres of warm water at 50 degrees centigrade and salt. The sodium hydrosulphite was then added to main

solution and mixed well. The indigo paste was then added and stirred gently to prevent the introduction of air bubbles. The vat was then left to stand for 2 to 3 hours.

Fig. 8:1,The Swaledale Yarn being dyed with Indigo

The yarn to be dyed was prepared by rinsing it in mild detergent. After removing any excess oxidised scum from the dye vat the yarn can be immersed in the dye solution. The yarn, in this case, was left over night and removed from the vat allowing it to oxidise and develop its distinctive colour. This process of immersion and oxidisation was repeated to intensify the colour.

As the finished bonnet is multi-coloured and a degree of soaking and manipulation is needed to shape it, the colours must be fast. It was considered appropriate to follow the old practice of rinsing the dyed yarn until the water ran clear (Mackie 1913, p.3). The need to leave the dyed yarn in a running stream became apparent. The yarn was repeatedly rinsed in clean water for around a week to ensure all traces of excess dye were removed.

Fig. 8:2, The dyed blue yarn undergoing the rinsing process.

Once dried the finished yarn was compared with the Pantone colour samples to verify the shade. It was noted that the finished shade illustrated below was a comparable shade to the colour required.

Fig. 8:3, Yarn sample used for the bonnet matched with Pantone samples.

Fig 8:4, The dyed Swaledale and Bluefaced Leicestershire yarns.

Spinning

As identified, the yarn was spun up as two ply. That is to say, two sets of fibres were spun individually and then twisted together to produce a single yarn. Although spinning was done by the individual for home knitting it appears that much of the spinning was done in spinning mills. As Mackie (1913, page 3) describes “It [the dyed wool] was afterwards dried and sent to the spinning mill to be made into yarn of the grist and thickness to suit the wires for knitting bonnets.”

As the yarn was already spun this process was not necessary, although after dying the yarn lacked the tightness of twist observed in surviving bonnets. To compensate for this the Swaledale Arran Yarn was given an additional twist to give the yarn a twist and tightness seen in the original. The twisted yarn was then wound into tight balls for the knitting process.

Knitting

It has not been possible to locate any contemporary knitting instructions. This is not unexpected as examination of extant bonnets reveals processes that are common for any skilled knitter. A contemporary examination of bonnets under construction, or in a finished

state prior to shrinking, would allow basic knitting techniques to be identified. It is also recorded that knitting was controlled through families or guilds.(Mackie, 1913, p.2) It must also be noted that the military would work from a sealed pattern (McKay, 2009) or regimental master for contractors to copy, a written or illustrated set of instructions would not be required. Generally, very little information has been recorded on the method of construction on any aspect of uniform, although comments on quality, weight, cost, etc. are common (Hartley & Ingilby, 1951, p.122).

Although Mackie (page 7) describes the needles used to make bonnets as being "…3/8 inch [a little under 9mm] thick at the pole and tapering to a point". Observation of extent military bonnets and supporting by trial pieces of knitting suggests this diameter of needle could not be the case with the bonnet to be reconstructed. The extant military bonnets studied needed a much thinner needle, and the ones selected to be used were 3mm in diameter, around a third the thickness of the ones identified by Mackie. A Stewarton (Kilmarnock) Bonnet in the collection of the Dick Institute, Kilmarnock. (Appendix B Art. No. 1, Acc. No. 1982/0028/0002) is knitted in a much looser manner and may be made of the type of 3/8 inch thick needles.

In length the needles were about 16 inches and four wires were used. It is often commented upon that one of these wires was stuck into a leather belt clasped round the waist with a sheath to hold it tight (Mackie, 1913, p.4). In the interests of research a short trial was conducted using a reconstructed knitting belt. The belt with a leather pad containing numerous holes and stuffed with horse hair could be used to rest the end of the needle whilst seated. The sheath gave the knitter added support to what becomes a quite cumbersome object. It also proved to be vital if the knitter has to stand or move about, as may be expected with a cottage industry where the artisan may have to do other tasks. This was trialled by passing the reverse end of one of the needles through two of the holes to support it at a desired angle. This short trial demonstrated that this additional support for the work allowed the individual to control the work in progress whilst standing.

Fig. 8:5, The bonnet reconstruction being knitted on a knitting sheath.

Knitting, in its simplest form, is a method of creating loops of yarn and passing further loops of yarn through these to produce an interlocking piece of stretch fabric, or knitting. This interlocking is enabled, and kept under control, through the use of hand held knitting needles, in this case four or more double-ended (double pointed) needles, also referred to as pins. The knitting used to make bonnets is created from a continuous spiral of stitches working out from the top centre. In effect the knitting runs continually in an anticlockwise direction. To achieve the desired bonnet shape the knitter introduces more stitches to each round, or when necessary decreases the number of stitches.

The needles are arranged around the section of knitting and a further needle is introduced to knit the yarn and allows the knitting to be passed on to it. As the yarn is knitted from one needle to the one introduced, the original needle holding the yarn is released and this needle is used then used as the one previously was introduced. This process of moving knitting around from one needle to another continues until the bonnet is completed.

Establishing the precise knitting method is difficult to ascertain as no two bonnets studied are made in an identical method. This is compounded by the method of construction because part of the process includes heavy felting.

As no extant example of the specific bonnet to be reconstructed is known, it was therefore necessary to develop a method for the reconstruction. The pattern that has been developed is based on period practices and reflects the methods used on extant examples, in this case a diced blue bonnet from the Regimental Museum of the Black Watch, Perth. (Acc. No.

A793) dated c.1854. Initial experiments to reproduce the knitting procedures used to make the top of the bonnet identified a method used to produce the flat disk necessary.

Fig 8:6, An example of a trial knitting sample

Several examples were made in an attempt to establish the correct degree of increase needed to produce the bonnet top. As each row is added it must increase its circumference in order to create a flat disk shape. This must be done by increasing or adding stitches to the circumference as it is manufactured. Too little increase will produce a cone shape, or in the case above shown above, too much increase will produce wavy or twisted edge. Neither will allow a bonnet top to be made to the correct shape. Through these trials a correct rate of increase was established. The example above was done by introducing the number of knitting needles from three in the centre and reaching seven at the stage seen above. This is an attempt to examine the use of numerous in an effort to understand references to such comments as the knitter using '..nine pairs of needles.' (Hartley & Ingilby 1951, p.90). This practice may only be necessary when dealing with bonnets of an exceptional diameter (see appendix B, artefact no. 3) for the diameter of bonnet under study five or six needles 16 inches in length is sufficient.

It is extremely difficult to start at the top centre from any other point than that of a small circle of stitches. This inevitably leaves a small hole which may identify the reason for the use of the "toorie" or pompom, which is so distinctive of a Scottish bonnet. The first 'round' of stitches consisted of 8 stitches cast on to each of three needles, these form a triangle; a total of 24 stitches in the round. 'Casting On' is simply a method of adding new stitches (loops of

yarn) to a knitting needle, and is perhaps the simplest process used by a knitter. It is a straightforward method, in which a new loop is drawn through the previous loop and then added to the needle.

Fig. 8:7 Casting On

For a right-handed person, knitting a stitch involves holding the needle containing the knitted material in the left hand. A needle in the right hand is pushed under the other needle and through the loop of yarn held on it. The length of unused yarn is then taken under the right hand needle and looped around it. This loop is then brought through the loop on the left hand needle and transferred to the right. One stitch has been completed. The tension on the yarn is controlled by the right hand.

Fig. 8:8 A demonstration of the position of hands and path of the yarn.

For the reconstruction the above method was adopted and the knitting was continued around the circle twice, at which point it became necessary to add extra stitches to enable the knitting to adopt a flat disc like character. At this point the next round of knitting was 'increased' at every alternate stitch to achieve 36 stitches in this round.

This method of increasing the number of stitches is a method described as a ‘bar increase’. This technique involves knitting a stitch in the normal way but without transferring the knitting stitch to the right (receiving) needle. The same stitch is then knitted through the back loop.

A further two rounds were then done in the normal method. The following, or fifth, round was increased every four stitches to produce a round of 48 stitches. The following four rounds were knitted in the normal manner until the tenth round. On the tenth round the first stitch was increased and followed by two regular stitches. The round was completed by following this pattern and increasing every third stitch to achieve a round of 72 stitches.

The following six rounds were knitted in the normal manner.

At round seventeen the method of increase changed to help keep the finished knitted surface flat. This involved starting the round with four normal knitting stitches followed by a different type of increase stitch. This increase stitch is called the ‘picking up method’. The yarn between the two stitches is ‘picked up’ and knitted to create a new additional stitch.

The round continued by knitting eight stitches followed by an increase in this way and this pattern was continued to the end of the round. Round eighteen was competed by using entirely knit stitches.

Round nineteen was started with five knit stitches followed by a pick-up method increase stitch followed by eight stitches and an increase stitch. The pattern was repeated to the end of the round and was followed by a row of normal knitting.

F9g. 8:9, Initial section of knitting working away from the top centre hole.

By row twenty the pattern of increase was established. More pins were added as required. The pattern continued in this manner, knitting every even numbered round and increasing in approximately the same places on odd numbered rounds, until the work reached the required size.

This is, with this particular reconstruction, achieved at the 42nd row, and a total of 240 stitches in the round.

With the increasing size of the bonnet it may become necessary to introduce more needles; in the reconstruction four needles were used plus a fifth to knit sections on to. The number of needles required may vary, but in this case four needle 16 inches long were sufficient.

Fig. 8:10, The near completed blue top of the bonnet.

At this stage the pattern developing from this method of increasing the diameter of the bonnet top is very similar to the method used to make a pillbox cap attributed to the Royal Scots Greys c.1854 (Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle Acc. No. 21215), although this pillbox cap is somewhat smaller than the reconstruction. This pattern presents itself as a series of curved radial ridges. Also of note is the way areas dip between the ridges. This is reminiscent of the dips along the side of a Glengarry attributed to the 93rd Highlanders, c. 1854 (Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.0007a).

At this point the bonnet needed to be ‘decreased’. This enabled the broad top to be finished and develop into the desired shape. The process of decreasing is the reverse of increasing and is simply done by taking the needle and pulling the yarn controlled in the right hand through two loops carried on the needles; in effect, knitting two loops onto one.

Fundamental to the appearance of a knitted bonnet and specifically one requiring a uniform design such as the military, is to end up with a specific number of stitches. This number of stitches varies from pattern to pattern but must allow the headband design to attach neatly to the bonnet proper. In this case each square on the diced border has 7 stitches and there are 24 squares, a total of 168 stitches. The number varied on the examples studied and naturally with the differing border designs, the common denominator is an appropriate number of stitches to allow the design to progress around the bonnet.

In this specific reconstruction, the blue section of the bonnet is decreased from 240 stitches to 168 over 36 rows. This was done through the loss (or decreasing) of nine stitches from every third row of knitting. On each of these third rows (eight rows) the nine stitches were reduced at regular intervals to produce an even scale of reduction, and arriving at the desired 168 stitches.

At this point on the reconstruction a series of red and white squares were introduced. This is a simple process in which knitting with the blue yarn stops and the contrasting colour was introduced to the knitting. The ends of the lengths of yarn were not tied or secured in any way, but a length of yarn was left exposed on the inside of the bonnet. These lengths can be passed in and out of the back of the dicing and are held fast in the felting process.

Fig. 8:11, The introduction of the diced border. View from the outside.

The dicing was produced by changing the colours as necessary. This was done initially through seven red, followed by seven white, followed by a further seven red and seven white. This was repeated around the bonnet and continued for seven rows at which point the design changed to alternate red and green squares for a further seven rows. A repeat of the seven red and white squares completed the design. The blue was then introduced to form three complete rows under the diced border.

Fig. 8:12, The introduction of the blue edging to the headband. View of the inside.

The knitting was completed through a process of 'Casting Off' which involved simply passing each loop over an adjacent stitch. At the end the yarn was passed through the final loop to secure the whole chain.

The hole created at the start of the knitting was closed by the use of a running stitch used to draw in the circumference to a small neat hole.

At this point the bonnet was large, shapeless and quite open in its consistency. It lacked the form and rigidity seen in extant examples.

The Block

To facilitate the correct forming of the bonnet as it is felted it needs to be supported on a block (see Fig 7:7). The traditional material used for hat blocks was wood and it is such material used in the reconstruction reported here. Extant examples and indeed the symmetry observed in bonnets suggest that the block itself was symmetrical and most likely turned on a lathe.

Fig. 8:13, The block being turned

The form of the block was determined from observations made of the calotype images and in turn scaled to be appropriate for the bonnet as reconstructed. To assist in the production of the block a full size female template of the required proportions was made from card. This would be used as a gauge to make the identical male shape.

Fig. 8:14, The Block after turning. Behind can be seen one the calotype images used to determine the shape, and to the right is the card template used to regulate the block shape.

As an economy measure the wooden block destined to be turned was made by gluing a series of smaller pieces of timber together to produce a larger block. This block was roughed to shape using a band saw and then turned to shape on a conventional modern powered wood turning lathe. All the tools used were hand held and not significantly different from ones used in the period. The turning was done with care and with frequent intermissions to check the progress of the form and to ensure that it mated well with the template.

Once turned, the block had to be capable of being removed from the shrunk and blocked bonnet. This was done by cutting the block into five vertical sections. These sections were cut at a slight taper to allow the sections to be removed through the head band of the bonnet. To locate these sections together whilst blocking the bonnet the sections were fitted together by the use of dovetailed sections fitting into recesses.

Fig. 8:15, The block sections in construction.

Despite the use of modern technology for these processes, the finished block does not differ in any significant manner to the blocks or technology available in 1846.

Shrinking the Bonnet

Experiments with samples of knitting using yarn and needles of the size estimated to be used on extant examples revealed shrinkage of up to 25%. That is to say the samples were reduced to 75% of their original size.

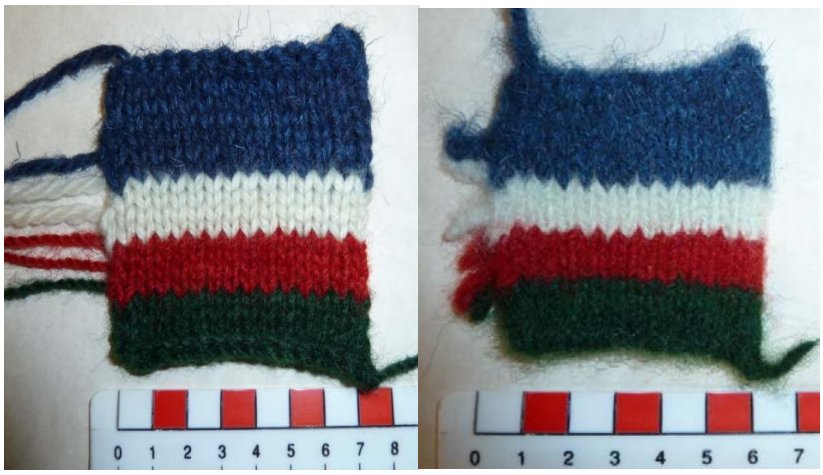


Fig. 8:16, Test samples with scale. Left, before shrinkage, and right, after shrinkage.

This shrinking, or more correctly ‘fulling’, was done by soaking the wool in cold water and repeatedly working the fibres together to allow the fibres to mat together. The shrunk samples revealed very similar feel and weight to the extant examples studied. For the completed knitted bonnet the same process was used. The initial work on fulling produced little shrinkage but revealed a bonnet shape very similar in appearance to many of the generic Kilmarnock bonnets. Below is pictured the author’s work and an extant example. Of note is the similarity in the way the two bonnets are reverting to what may be termed a ‘natural’ shape. The distinctive disk shape to the top and the way the decorative headband curls over.

Fig. 8;17, Left, the author’s reconstruction at the start of the fulling process. Fig. 8:18, Right, Kilmarnock Bonnet in the collection of the Dick Institute, Kilmarnock.

As the fulling progressed the bonnet adopted quite a rounded shape. This shape was very reminiscent of the bonnet worn by Alexander Montgomerie around the year 1784, and is seen in the portrait by Sir Joshua Renolds, now in The Royal Collection.

Further fulling increased the shrinkage and caused the fibres to tighten up as predicted in the test samples. The bonnet was secured around its base by a number of millinery pins to keep it to the correct depth and preventing any undue movement. A length of bias woven tape was wound around the bonnet at the point where the bonnet changes from the parallel to the outward taper. This helped the bonnet to achieve the block shape.

Once dry, the block is removed. The knitted bonnet has retained the block shape but does not have the inherent strength to keep its overall shape. The height of the bonnet is too

heavy to be supported by the woollen fibres. The need for the liner is obvious if this distinct shape is to be retained.

Fig. 8:19, The bonnet drying on the block.

The Liner

Lining used in all the extant bonnets studied was made from a common type of natural coloured linen. All were attached to the knitted part by the use of numerous rounds of stitching. The pattern was established by overlaying paper to the block and trimming the paper to achieve an accurate shape.

Fig. 8:20, The Liner pattern applied to the fabric

The orientation of the cloth was of significance as it would distort if cut on the bias (diagonal), it was therefore important to cut the fabric in this way in order for it to behave in the desired manner. As the headband section is required to remain regular, and in common with extant bonnets, it was cut squarely with the weave of the fabric. The curved sections inevitability have degrees of straight and bias cut to them.

The sections were hand sewn with a thick linen thread to conform to the block shape. Starting with the bottom edge of the headband the liner was stitched into place. Care was taken, as can be seen in the extant examples, to use numerous concealed stitches. Once the liner was stitched in securely all the way to the top edge it was apparent that the bonnet had achieved a semi rigid form as was observed in the calotype evidence.

Finishing

The finishing processes consist of teasing, cropping and pressing the surface of the bonnet in a similar method used to finish felted woollen fabrics. These procedures give the bonnet a neater and more durable finish. To allow for ease of work they were all done with the block in place.

In this case the teasing was done with a small stiff brush. The surface was quite roughly dragged with the brush towards the headband from the centre of the top. This allows all the nap to be exposed and pulled in the same direction. Although no information has been found to identify the precise method of teasing the nap, the original process may have also been done with teasels. A teasel was trialled and was comparable with the small stiff brush, but was found to be a little too coarse for the process and if not used carefully could damage the fabric of the bonnet.

The surface at this stage was quite fluffy with excess fibres. These were carefully cropped with a sharp pair of shears to give a short and uniform appearance. The fibres were then again brushed in the same direction and the whole bonnet pressed. The pressing was done by placing a damp tea towel on the bonnet and a hot iron applied to the towel. The large amount of steam produced and the pressure from the iron makes the surface of the bonnet lay neatly and presented a uniform appearance. Having a knap that slopes down, as with a thatched roof, allows moisture to be turned from the surface. This finished surface may be aided by the repeated use of a clothes brush, something all soldiers were required to have.

Fig. 8:21 Cropping the bonnet.

A simple torie was made taking a length of the red wood used for the diced border. As the extant bonnets examined had quite crude tories, it seemed appropriate to make one in a simple manner. A length of the red yarn was repeatedly wrapped around four fingers of the hand until the correct size had been reached. The hank was then cut in two places producing numerous short lengths of wool. These were then bound in the centre with linen tread and tied off. The torrie was matted and waulked in a similar manner to the rest of the bonnet then teased and cropped to a sphere. It was finally stitched in place to cover the small hole in the top of the bonnet.

Fig. 8:22, The Finished hummel bonnet

Conclusion

The processes necessary to reconstruct a hummel bonnet of the specific type (identified from the images Figs. 7:9 & 7:10) were demonstrated and documented. This included identifying the order of manufacture production, the materials selected and production methods. These various elements necessary for the production of a hummel bonnet have been applied and a recognisable artefact was produced.

The reconstruction will be subject of further analysis in order to determine the accuracy of its size, shape, colour, material, etc. which will then allow experimentation and reflection on the original bonnet.

Chapter 9

EVALUATING THE FINISHED RECONSTRUCTION

Introduction

In chapter 8 the method of manufacturing a reconstruction was documented. It was demonstrated that it is possible to reconstruct a hummel bonnet with the desired characteristics. This chapter explores the validity and character of the reconstructed bonnet and seeks to establish the value of the reconstruction in light of the principles set out in chapter 2.

Initially, attention is aimed at the object itself with the material form and appearance being scrutinised. Secondly, the relationship between the bonnet and wearer is explored, this approach seeks to understand not just the physicality of the object but more the kinds of corporeal relations that the bonnet facilitates. Such attempts are accompanied with significant challenges but at the heart of this approach is the assumption that to use the body in similar ways to those who inhabited different times and places is to gain, at least some aspects of insight in to their world view (Ingold 2000 p.157-171). This in itself is a contentious position to hold but the critical point which informs this study is that the body itself can be used as an analytical instrument to understand cultural cognition and perception. This is a significantly different perspective to that held by mainstream British social and American cultural anthropology. Although each school develops specific approaches to perception (Ibid.) they are both united in the common importance that they attach to the psychological dimensions of perception and specifically the concept of internalised rules, be they language or cultural knowledge. Both schools seem to underplay the active nature of perception (Gibson 1979.) and in doing so the role of the body is not included in most syntheses of perception. This is of course debilitating for experimental studies as the role of the skilled practitioner or clothed body assumes a central role in most analyses. In a similar manner the role of the body has assumed a central position in the work of Pierre Bourdieu who has sought to collapse the tension which exists between structuralist and agency centre studies. Bourdieu introduces the concept of habitus as a way of scrutinising the various dispositions afforded by the body. Critically, Bourdieu makes the point that the habitus carries with it a sense of performance and in this it is a public act and stands in contrast to internalised and hence private values. The habitus can be thought of as learned techniques of the body, or ways of presenting the body in culturally meaningful (or indeed meaningless) ways. Of all the categories of material culture it is perhaps dress

which maintains the most intimate connection the body in that it is not only given form by the body but it is caught up in a relationship with it whereby its materiality serves to facilitate and constrain certain dispositions. From this perspective and with ubiquitous taboos surrounding nakedness in mind it is apparent that the habitus can rarely be understood as something pertaining simply to the body; rather it is something that emerges as the dressed body makes its way in the world.

From this perspective we can begin to see how the analysis of a reconstructed bonnet can begin to provide some insight, albeit a situated one, into the uniformed body of the 19th century. To understand the relationships made possible with the hummel bonnet is to begin to understand the manner in which individuals, in this specific case the Gordon Highlanders, presented themselves, not only in the calotypes of Adamson and Hill but also in daily life. Without a desire to stretch the analysis it is apparent that it becomes possible, at least in theory, to begin to appreciate the very mechanisms through which the state in its prescribed uniform guidance begins to present itself through those who have aligned themselves with its armed forces. In understanding how the hummel bonnet constrains and facilitates movement is to understand the preferences and allegiances that uniformed soldiers begin to exhibit in their routine practices and how they are incorporated in political, national and social relations. It is this process of incorporation that the habitus, itself modified by innovation in uniform, that the habitus brings change in overarching social structures ranging from the intimately social to the extensively political. It is through developing known and accepted ways of practice that the uniformed soldier is not only incorporated in to the rank and file but the means through which the state projects and communicates its ability to marshal control and direct its power, both within and beyond its own territories.

It is an important basis to this study to establish the accuracy (or authenticity) of the reconstruction. This accuracy has been established through making comparison with the available evidence, specifically from extant bonnets and relating these to their appearance in imagery (the Calotypes) which has been deemed as appropriately accurate.

Having established the objective accuracy of the bonnet the study turns to a more subjective analysis through the dressing of the body. For the study to progress along this line then a degree of familiarity needs to be established., This is not something that can be rushed and indeed the investigation into the repeatability and familiarity of the bonnet is on-going. An assessment to date has been made of the repeatability, familiarity and scale of the reconstruction, and a reflection is offered on the process of reconstruction and application to the dressed body alike.

Evaluating the Accuracy of the Reconstruction Materials and Techniques

At all points of this investigation and trial stage it was understood that the relationship between any investigation of original material and the choices made in experimentation had to conform as closely as possible. As Coles specifies (Coles 1973, p.15) the materials used in any experimental project should be appropriate to the subject being studied. In this case the appropriate yarns were sought, selected and tested for their close resemblance to extant bonnets of a similar era and type. Issues of production should be fairly considered alongside the material outcome of any process of replication. Again in line with Coles it is suggested that the methods of production should be appropriate to those envisaged for the subject studied. In this case the production time of the extent object needs to be taken into account. This principle mitigates against the use of modern methods that may provide similar material outcomes yet give no insight into the likely methods used. It is also the case for the craft of knitting that the hand knitting practices identified in extant examples are still widely known today.

Evaluating the accuracy of the reconstruction presents a fundamental problem. That is, if the reconstruction is of a specific artefact that no longer exists, how is the accuracy of the reconstruction to be established? It is therefore necessary to compare the reconstruction with the known and make suppositions on the unknown. This can be done by making direct comparisons with known elements already established. These consist of a direct comparison between the materials and manufacturing techniques used in producing similar bonnets and the reconstruction.

The reconstruction selected (see images Figs. 7:9 & 7:10), despite being a different shape to the extant bonnets studied, has certain commonalities throughout all the examples studied; one particular aspect being the felted fibres. The example used to make a material comparison with was the bonnet in the Regimental Museum of the Duke of Wellington's Regiment, Halifax. (Knitted Woollen Cap Acc. no. DWR 174). This example, upon examination, displayed the same hard, felted knitted qualities identified throughout the extant knitted bonnets studied.

Fig 9:1, Comparisons made between Left, Knitted Woollen Cap (Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174) and right, the Reconstructed Bonnet.

This comparison of the original artefact and the reconstruction was done with the cooperation of Mr John Spencer, Curator of the Regimental Museum of the Duke of Wellington's Regiment. When held simultaneously between the fingers, one in the right hand and one in the left, the two bonnets reveal a close similarity. The coarseness of the felted surfaces of the two bonnets is very similar to touch, although the extant bonnet is marginally coarser. When pressed between the fingers the felted material has the same solid nature in both cases. This is not a spongy feel, perhaps anticipated from its soft appearance, but quite a hard feel. The materials resist further compression equally. The feel and texture of the felted knitwear compares favourably with the extant originals. As seen on the image above, the top outside edges of the bonnets easily keep their firm line. Despite a significant difference in the colours, direct comparisons between an extant bonnet and the reconstruction have established them to be very similar in the qualities of touch feel and texture.

The weight of the finished reconstruction is worthy of note as it can give a clear indication of materials used. The weight of the reconstruction was 210 grams, which compares favourably with the above example, weighing 175 grams, making the reconstruction approximately one seventh heavier than the extant bonnet. If the extra size of the reconstruction and the additional layer of yarn to the diced border is taken into account, it would suggest that the use of materials is comparable for a bonnet of this size.

These direct comparisons reveal that the combination of yarn, knitting, felting and finishing used to make the reconstruction have combined to produce a material that has very similar qualities to the original. Through the use of test samples and the reconstruction it has been established that needles and yarn seem to be correct size. These observations were in fact independently confirmed by Mr. Spencer

Further comparisons can be made between an extant and the reconstructed diced border. Making a direct comparison was limited to one example, a diced blue bonnet, from the Regimental Museum of the Black Watch, Perth, Scotland (Acc. No. A793) and dated to 1854. This bonnet was the only hand knitted military bonnet found that did not contain a lining that completely hid the reverse of the diced border. However this particular example is made of a finer yarn and in all respects is a very neatly made item, and no reason can be found to suggest this is not typical of the interior of diced borders. The comparison of this bonnet with the reconstruction demonstrates a similarity of appearance and therefore suggests a similarity of manufacturing process and materials.

Fig.9:2, The interior of the diced border reconstruction

Fig.9:3, The interior of a Diced Blue Bonnet. From the Regimental Museum of the Black Watch, Perth, Scotland. (Acc. No. A793)

This suggests that this method of knitting the diced border is probably desirable to maintain a neat and regular method of laying the yarn. This allows the maintenance of an even thickness of fibres and the regularisation of the tension of the free strands of wool. In production it is necessary when working with two or more colours to control the alternately coloured yarns, only one of which is used at any one time. This is done by the knitter through keeping the balls of yarn in a relative manner, that is to say, one always above the other. Through examining this aspect of the reconstruction it is noted that the border is not only decorative but can be worn around the head with no discomfort.

In the Regimental Museum of the Black Watch, Perth, Scotland there is also a feather bonnet (Acc. No. 1078/1), dated 1854. The diced border, although part of a feather bonnet, on examination is a complete hummel bonnet and as such contains all the elements associated with headwear of this type. This was discovered when the artefact was being examined by the author. The museum staff were also unaware of the structure of the artefact and its likely origins as a complete hummel bonnet. The examination revealed the ostrich feather tails stored in the internal parts of the bonnet structure that the staff did not know were present. This artefact, with its origins and displaying the diced border is a similar extant artefact to the reconstruction, with similar background as the ‘plain’ unadorned bonnet.

Fig.9:4, The diced border from the Reconstruction

Fig. 9:5, The diced border from a Feather Bonnet and Hackle, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1

Comparison between the reconstruction and the example above reveal several aspects in the appearance of the diced border. Both examples have an irregular and less than perfect series of dicing; few regular squares are seen. It is immediately apparent that the reconstruction is far more regular than the extant bonnet, but the reason for the difference is not evident. The stitches used to produce the dicing are of the same type although the reason for the irregularity of the finished rectangles is not clear. This may be due to wear, damage and repair, or part of the manufacturing process.

As the diced border of the reconstruction is the first piece of knitting undertaken by the author the natural assumption would be that it would be inferior to the original produced by a professional manufacturer. Speculation suggests that this distortion on the feather bonnet may have been caused through damage, repair or distortion since its manufacture in the

1850s. Access to the rear face of the dicing may answer this question, but it is improbable that such an intrusive procedure would be allowed on such a rare item. This would present an opportunity to produce further experimental archaeology, in order to replicate and identify the reasons for this appearance.

The characteristic marks of the shrinking and blocking process reveal a series of wrinkles or corrugations to the underside of the top. This characteristic can be seen on the reconstruction despite the effort spent on producing a smooth and regular finish. This same irregularity is clearly seen on the knitted woollen cap attributed to the 33rd Foot (Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174).

Fig.9:6, Detail from the bonnet reconstruction

Fig. 9:7, Detail from Knitted Woollen Cap attributed to the 33rd Foot (Regimental Museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174).

These similarities of appearance suggest a characteristic arrived at through the use of similar materials and production techniques.

Without doubt this reconstruction could not have been successful without the correct shape block. The block provided a stable form on which to reduce the knitting, without which its form would not be fixed or capable of been regularised. The block will allow further bonnets, as would be desired by the military, to be produced of precisely the same shape. This draws attention to the point that uniformity is as much a product of the blocking process as is the knitting. This section has allowed the nature of the blocking to be analysed in its details. The accuracy of the overall shape achieved through the blocking process is examined in the section on inhabiting the Bonnet (see below) where direct comparisons are made between the reconstruction and calotype images.

Comparisons with Calotypes

The dark shades on the above calotype prevent any precise identification of the shape of the bonnet, and therefore comparison with the reconstruction is difficult. The diced border is seen as tapering in towards the top, whilst the reproduction shows much less taper; perhaps this is an individual's reshaping of the issued bonnet? The differing shapes of bonnet seen in the calotypes can be created with the same pattern bonnet. Experiment has revealed that the same bonnet can be manipulated or worn in differing positions to give the wide variety of

shapes seen. Pushing the bonnet to the back of the head or pushing the sides together produces different shapes.

In general terms the appearance of the reproduction is demonstrated as being very similar to the four calotypes. The comparisons reveal a difference in the proportions and shape of the white and coloured dicing. All the dicing studied on the extant examples are quite square and made of equal numbers of stitches, although this may be distorted through the relative weakness of the white yarn. The calotypes show the white areas to be over illuminated or brighter and more rounded than expected. This appears to be a distortion caused by the calotype process which produces the rounded and over-sized white area. The monochrome nature of the calotype and lack of fine focus restricts the identification of detail. The silhouette is also hidden against similar shades of background colour. Despite these problems it is apparent that the reconstructed bonnet has achieved a close replica in terms of shape and proportion of different coloured areas compared to the calotype.

For comparative image analysis four of the clearest images from the calotype collection were identified, two of which show the same bonnet (Figs. 9:8 & 9:10) from slightly different angles, and two others (Figs 9:12 & 9:14) depicted individuals wearing bonnets from differing angles.

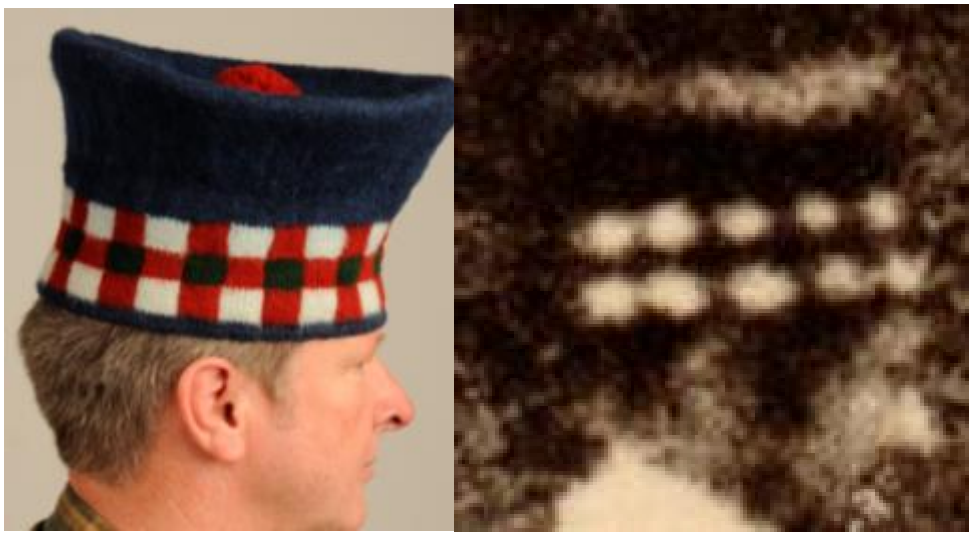
At the time the coloured comparative images were taken the bonnet had been worn episodically over a period of two weeks The model had had time to familiarise himself with the means of placing the bonnet on his head in a similar manner to the ones seen in the four calotype images selected for comparison with the reconstruction. The method of wearing the reconstructed bonnet for the comparative photographs proved to require little effort to resemble the calotype image. These comparisons in the method of wearing the bonnet was little altered from the method adopted and recorded in the ‘First Impressions’ section. In other words the manner of wearing the bonnet was unconstructed and took little time to make it resemble the photographic images.

Right (Fig. 9:8), close up of the Sergeant from *Sergeant and Private of the 92nd Gordon Highlanders* (Ref: PGP HA 2661, Scottish National Portrait Gallery) and Left (Fig. 9:9) , the reconstruction from a similar angle.

The above images (Figs. 9:8 & 9:9) permit comparison of the reconstruction with a calotype image of the sergeant. The images identify an overall similarity in size and shape when the bonnets are viewed from this particular angle. The soft grainy appearance of the blue section on the calotype is imitated on the reconstruction. As the calotypes are inherently grainy it is difficult to consider this as strong evidence of the similarity of the bonnets in the two images above.

Right (Fig. 9:10), close up the Sergeant from *92nd Gordon Highlanders and their wives at Edinburgh Castle,* (Ref. M. 1937.119.11, National Museums of Scotland) and left (Fig 9:11), the reconstruction from a similar angle.

The above images (Figs. 9:10 & 9:11) compare the reconstruction with a different calotype image of the same sergeant as seen in Fig. 9:8. As this calotype depicts the same individual, and therefore same bonnet, which can be seen from a different angle; in this case the subject is looking slightly down. This difference in the way the bonnet is seen permits different aspect of the bonnet to be viewed. Again the similarities in shape and size are evident, but in this case other comparisons can be made. Despite the grainy appearance of the calotype, the toorie can be identified as a light coloured smudge near the top centre of the bonnet. Its situation appears to be partially hidden from view due to the concave nature of the bonnet top. The very similar appearance of the toorie on the reconstruction can be seen. This comparison demonstrates the accuracy of the duplication of the concave top, the location and size of the toorie, and the general shape of the bonnet top.



Right (Fig 9:12), a Soldier's bonnet from *92nd Gordon Highlanders and their wives at Edinburgh Castle,* (Ref. M. 1937.119.11 National Museums of Scotland) and left (Fig. 9:13), the reconstruction from a similar angle.

The above images show comparative images taken from similar angles. Again the grainy quality of the calotype gives a strong suggestion of the shape and size of the bonnet. The diced border is clearly depicted and there is also visible what can only be the bonnet top and toorie, also seen on the reconstruction. The angle of the bonnet sides, as seen from the side, show a much more vertical appearance when compared with the front facing images. This can be explained by the way the oval shaped head changes the shape of the round bonnet.

Right (Fig. 9:14), a soldiers bonnet from *Soldiers with child sat on* gun (Ref: M. 1953.538.2, National Museums of Scotland) and left (Fig.9:15), the reconstructed bonnet from a similar angle.

First Impressions

The subjective analysis of the bonnet itself can only truly begin with the finished reconstruction. Of course, insight has been gained into the design and production of the bonnet and these are certain to be of worth yet this is not a specific focus of the study here indeed, it is thought that throughout the manufacturing process it is only possible to be speculative about matters relating to how the article appears, can be worn or its affects the dressed body. In other words, the reconstructed artefact needs to have achieved a state of completion before it can be studied or analysed as a culturally meaningful object.

A *first impression,* is the experiences, perceptions and feelings gained by the researcher in the short period of the completion of the reconstructed bonnet. This period was limited to a few hours of the bonnet achieving the finished state identified in chapter 8. These impressions were recorded as they may yield important insights and are in contrast with familiarity which allows a deeper relationship to develop with the object. This is significant as the object itself is a dynamic entity. As it is increasingly worn and handled its material begins to transform, it's obedience to the wearers form begins to develop, the touch of the object changes as it is handled, in other words it becomes worn as familiarly is gathered,

It is through such exposure to the object that attachments and sentiments develop with the object, the so called “Exposure Effect“ (Lidwell et al 2003 p.70) . According to Lidwell, the longer an item is with a researcher, the more it may be considered agreeable to their requirements or conceptions. This is an unavoidable consequence of on-going research and is to be expected but it serves to underline the importance of documenting the developing relationship with an object under study as the initial impact may differ significantly from more considered insights into the object.

From the moment the bonnet had been removed from the block there was a sense that it was reassuringly coarse to the feel. This was an important observation as many modern yarns had not indicated that they would provide this typical characteristic of the extant bonnets. To encounter such a coarse dense material was therefore satisfying and indicated that some of the decisions and choices made in the reconstruction, the results of deductions made in light of the study, were in part justified. Such properties were difficult to quantify but it was clear that the quality of coarseness common to the extant bonnets examined, was mirrored in the reconstruction and therefore suggested that the material authenticity and the production methods used for the reconstruction are, if not precise replication of the original, are very similar.

The appearance of the bonnet was surprising. It was brighter than expected and the contrasting colours do not harmonise in the manner that was perhaps anticipated. Despite careful selection criteria being followed the blue appeared lighter than anticipated and the red duller. Together the contrast is felt to be different than what was expected by the researcher. This contrast may be a direct contrast with expectations derived from the researcher’s use of black and white imagery (Calotypes), or the use of attractive coloured contemporary artist’s illustrations. These perceived contrasts are in contradiction to the comparisons (see Figs.(9:1 to 9:7) which demonstrates the close similarities between the reconstruction and extant bonnets. This contradiction suggests a need for awareness of all elements utilised in this form of research and the value of objectivity when reconstructing the past.

The bonnet is tall, unusually so for a woollen item. In fact, with its felted density and weight it is not only tall but it is large. It is a substantial piece of headwear, In addition of its size it is a peculiar shape, whilst it may well have given the wearer in 1842 a sense of inclusion worn today it gives a sense of isolation and a distinctly ‘out of place’ sensation.

The bonnet keeps the head warm, which is not unexpected but an element that would be presumed necessary for a traditional bonnet that has evolved in a northern climate. The bonnet feels and, through the use of a mirror, looks impressive. The garment would probably make little impression to the members of the 92nd Foot as all members would wear the same head dress, but to an outsider, be they military or civilian, it would be imposing. It would certainly present a distinctive contrast to the common, disk shaped knitted bonnet.

The bonnet is also heavy. It is perhaps heavier than expected until one realises that original bonnets studied were museum exhibits, and as such they are treated with care to prevent any damage occurring. Extant examples are treated with respect, handled mildly and it is often difficult to take them "in hand". For instance, they cannot be twisted in the hand, spun around the fingers, or thrown across the room to a comrade, their designation as museum exhibits renders them something other than a 'soldiers headwear'.

Inhabiting the bonnet

So far we have undertaken a critical analysis of the materials and form of the bonnet and commented on the first impressions when the bonnet was first inspected and indeed worn. In this section we move towards investigating the performative aspects of the bonnet and particularly how it can be "inhabited" by the body. To scrutinise the finished artefact it was necessary to not only gain familiarity with the object but also to analyse it in situ as a worn object. A key aspect of this analysis was the production of a series of comparative images (Figs 9:8 to 9:15). These images not only present a visual replication but also demonstrate a functioning replication of the original images.

At the time the comparative images were made, little attempt was made to manipulate the model or the reconstruction. Rather, the apparent balance and ergonomics of the hat were allowed to suggest how it should be worn, perhaps in a manner that some might consider a 'natural' approach. This lack of manipulation allowed the bonnet to be worn in a spontaneous way. By wearing and recording the bonnet in ways that its weight and poise seemed comfortable and balanced it is possible to suggest that reconstruction is similar not only in its appearance but in its material qualities and characteristics.

Little contemporary evidence has been found to give information on the wear, treatment or care of the undress bonnet. The 1844 Dress Regulations give a generic instruction that ' The *caps* of the Infantry are not to be worn on one side, but are to be placed even on the Men's heads, and brought well down on the forehead.' (Horse Guards 1844,.p.157). This

regulation when compared with the contemporary illustrations contained in this thesis suggests that the army authorities were trying to regulate or change an established practice. It is therefore necessary to speculate if an understanding of the appearance of the bonnet under study is to be achieved. It has been established that the blocked shape has been achieved through a wetting and milling (felting) process, and as such is resilient to any reshaping. Practice with the reconstruction reveals that only by soaking the bonnet in water does the bonnet becomes pliable and reshaping becomes possible. The use of cold water may be considered appropriate for reshaping under the following scenarios: as a bonnet if worn regularly out of doors will undoubtedly get rained upon, it may periodically get cleaned with water, or the soldier may intentionally soak the bonnet to give it the shape he desires. Anyone of these processes in conjunction with positioning the bonnet on the head in differing manners inevitably gives shape to the bonnet. The following enlargements from a calotype are shown alongside images of the wetted and reshaped reconstructed bonnet.

Fig. 9:16, *92nd Gordon Highlanders and their wives at Edinburgh Castle, detail,* (Ref. M. 1937.119.11, National Museums of Scotland)

The outline of bonnets seen in the above calotype (fig. 9:16) details *92nd Gordon Highlanders and their wives at Edinburgh Castle,* shows a clear variation in bonnet form. In general the bonnets are less angular, a little more upright, and less symmetrical. than the sergeant's bonnet seen on the far right of Fig. 9:16. The reason for this is not apparent if one is expects that within the military, a uniform appearance is desirable. This uniformity is demonstrated throughout the calotype sequence when dealing with Full Dress, where the precision of dress can be identified (chapter 3), but it is apparent that the soldiers in undress have an irregular way of shaping and wearing their bonnets.

The image above shows a number of soldiers apparently viewing others having their photograph taken. The Sergeant, far right, is the only one who has chosen to wear his bonnet in what might be considered to be a sharp and regulated manner whilst the

remainder appear to wear theirs in a series of rounded and apparently less regulated shapes. Despite the crude imagery of the calotype, the distinct way the Sergeant wears his bonnet makes him stands out from the crowd. From fig 9:16 there seems to be a common practice among the men by distorting the shape through pushing in the sides and pushing the top down into the hollow on the top.

Fig. 9:17, Heath, W . *Drill*. Detail Published April 1829 by McLean 26 Haymarket.

The elegant form of the Sergeant's bonnet in comparison to the more squat rounded versions displayed by the other soldiers in undress may be related to status. Fig. 9:17, a contemporary cartoon by William Heath, illustrates and only slightly exaggerates similarities with Fig. 9:16. Both images display a sergeant (right of image in both cases) with an angular and large bonnet comparable with the reconstruction. This is in contrast to the remaining figures in both illustrations, the rank and file, who are seen wearing smaller, less regular and more rounded bonnet. Although inconclusive, fig 9:17 clearly supports the calotype (fig 9:16) and suggests that it may have been common practice (on expected) that an individual of a higher status is required to appear differently. The social significance of Victorian men's head coverings is examined by Diana Crane (2000), and makes it clear that Victorian society placed great significance on it. The social distinction between a sergeant and the rank and file, still preserved in Her Majesty's Forces, is not exempted from this. The need to preserve or establish the visual distinction whilst wearing the same, or similar, prescribed head dress, the hummel bonnet, may have been necessary. This may be a reason for a distinctive and larger dimension to the men of different ranks.

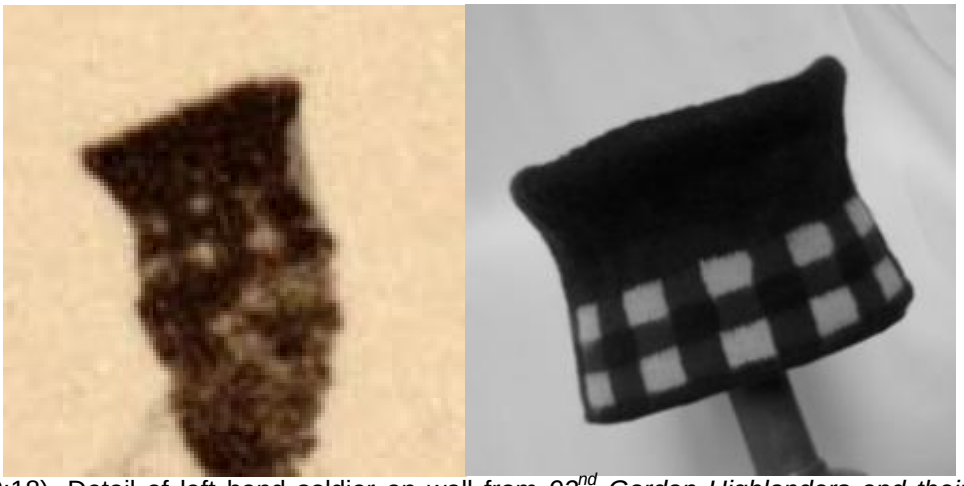
Although status is suggested, the reason for this variety of bonnet *styles* is unclear. Speculation suggests that it may be a number of other reasons for these differences. The manufacturing or materials used in the bonnets may differ, constant wear in all weathers may affect the shape, or a more relaxed approach to wearing uniform may be in place by the

authorities. Whatever the reason it is not apparent. Therefore it is appropriate that this speculation may be examined or tested with the reconstruction where appropriate.

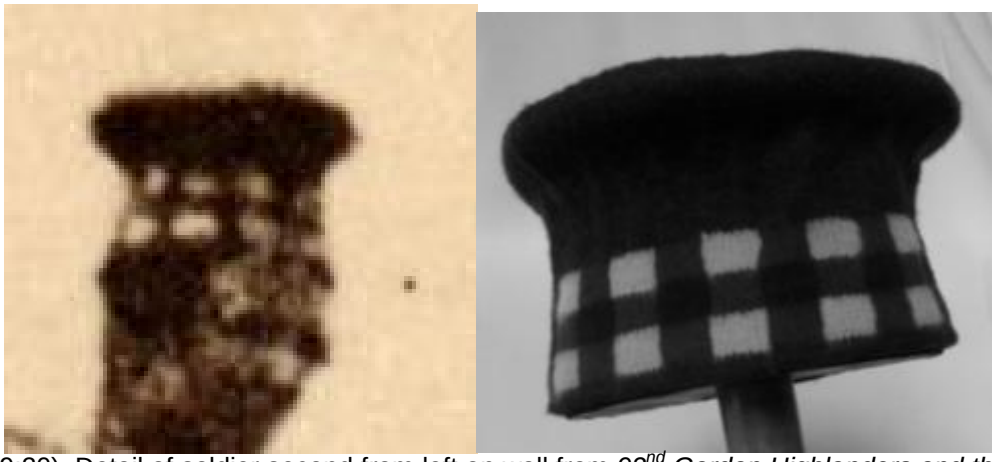
The question arises of whether all the bonnets seen in the images (Figs. 9:16 & 9:17), are illustrations of bonnets made to same specification. Experimentation with the reconstruction shows that the same bonnet can be manipulated from the shape worn by the Sergeant to the variety of styles worn by the other individuals seen in the calotype. As the reconstruction has been given a regular shape which is kept in place by a liner this sort of manipulation is not easy. This manipulation is better achieved if the bonnet is soaked prior to it being pushed into a new and less regulated shape.

The Sergeant's bonnet appears far more structured, whether this could be the result of materials added to give it extra form needs to be considered. Hummel bonnets used as the base for feather bonnets are reinforced with a cylinder of card and wire used to give it shape and support across the top (see appendix B6). It needs to be considered whether these, or similar, practices be used to give a more formal shape to the unadorned bonnet.

The bonnets of the five remaining soldiers are lacking in size and sharpness when compared with the sergeant's bonnet, but do show a variety of distinct shapes. This poses the question of whether all of these bonnets were of the same or very similar pattern, or whether the shape was produced via a process of use by the soldiers. The following comparative images (Figs. 9:18 to 9:28) demonstrate the reconstructed bonnet, after wetting and reshaping, in the differing shapes seen in fig 9:16.

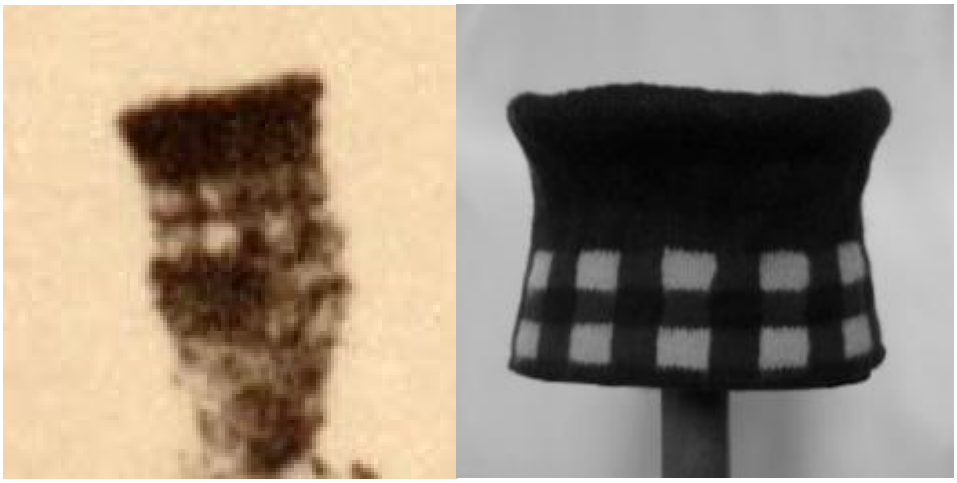


Left (Fig 9:18), Detail of left hand soldier on wall from *92nd Gordon Highlanders and their wives at Edinburgh Castle,*(N.M.S. Ref. M. 1937.119.11). Right (Fig 9:19), the reconstructed bonnet.

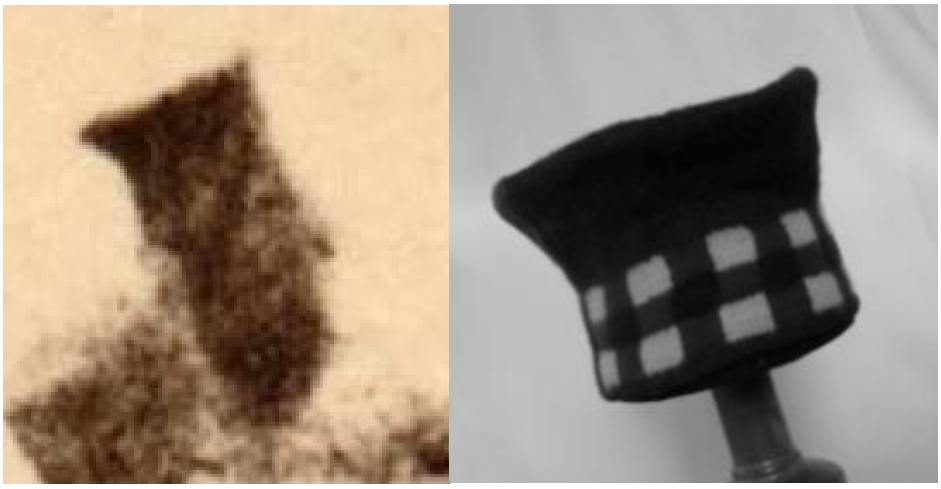


Left (Fig 9:20), Detail of soldier second from left on wall from *92nd Gordon Highlanders and their wives at Edinburgh Castle,*(N.M.S. Ref. M. 1937.119.11). Right (Fig 9:21), the reconstructed bonnet.

Left (Fig. 9:22), Detail of soldier third from left on wall from *92nd Gordon Highlanders and their wives at Edinburgh Castle,*(N.M.S. Ref. M. 1937.119.11). Right (Fig.9:23), the reconstructed bonnet.



Left (Fig. 9:24), Detail of soldier forth from left on wall from *92nd Gordon Highlanders and their wives at Edinburgh Castle,*(N.M.S. Ref. M. 1937.119.11). Right (Fig. 9:25), the reconstructed bonnet.



Left (Fig. 9:26), Detail of soldier sixth from left on wall from *92nd Gordon Highlanders and their wives at Edinburgh Castle,*(N.M.S. Ref. M. 1937.119.11). Right (Fig. 9:27) the reconstructed bonnet.

The above images demonstrate that simply through wetting and remodelling a single bonnet, several differing shapes can be achieved, all of which bear a distinct similarity to the contemporary calotypes. This trial demonstrates that the same pattern of bonnet, using the same materials and method of construction, may have been used by all ranks.

When the bonnet is worn it is noted that this method of reshaping allows the bonnet to shape itself around the skull, giving it a more secure fit and is distinctly more comfortable than the regular shape used by the sergeant. The reduced size of the top gives less leverage. This makes the bonnet more stable on the head and allows freer movement without the bonnet falling off.

The use of these differing shapes are unexpected when comparison is made with the photograph of *The Remains of the Light Company of the 38th Regiment, 1855* (fig 6:8) in which around 30 soldiers can be seen wearing bonnets of a consistent shape and in a uniform manner. It is possible that the individuals in Fig. 9:16 would have reshaped their bonnets when off duty, but experimentation with the reconstructed bonnet suggests that altering the shape of the bonnet is only practicable when wet, and once allowed to dry to a shape, it remains in this shape. This practice is reminiscent of shaping beret in todays armed forces. The practice of shrinking and shaping woollen berets has been done in an unofficial capacity by Her Majesty's Forces for a number of years. The author, upon entering the Light Infantry Regiment in the nineteen seventies was shown how to use hot and cold water to shrink and shape his beret to conform to the shape and style required. The rationale for this practice was not explained,(although the author was told not to get caught doing it), and the

practice was simply that expected within the regiment. This practice has now become prescribed (See Fig.9:27) and may simply be a way to regulate existing practice. The reason for this practice is unclear despite it being a subject that is comparatively recent and as such should present far fewer problems for the researcher.

Fig. 9:27 Label from an R.A.F. Beret, c. 2010, Alexander Tovey collection

From this comparison (between figs 6:8 and 9:16) it may be suggested that a number elements may be at play here. It may simply have been a regimental approach to an item of dress where a uniformed and regulated approach to undress is allowed or even encouraged in some regiments but not in others. The bonnets may not be manufactured to the same quality as the research suggests. The men in fig. 9:16 may have been encouraged by the photographer to present themselves in this untidy way to conform to a stereotype as seen in fig. 9:17.

Personal Reflections

Through establishing the accuracy (or credentials) of the reconstruction, recording the first impression, inhabiting and further experimentation with the bonnet shape, an opportunity arises to make a personal reflection upon the reconstruction.

As a new recruit the bonnet may have struck the new owner as representing the traditions and power of the regiment within which he found himself. He may have been struck by the

coarseness, or rigidity of the bonnet and how this contrasted with those which he had encountered in civilian life. From this perspective the recruit would begin to appreciate that army life quite literally “felt different”. For the author immediate impressions are that of something brought to life. A tangible three dimensional personal object brought forth from the linear if not two dimensional yarn. The feel of the bonnet is striking in its contrast to modern fabrics, its rigidity, density, and resilience all testify to its alien origins. It is easy to suppose that it provides a tangible connection with materials from times past. Whilst possible if not likely, the author struggled to maintain a distance from being seduced into such ready conclusions. Nonetheless, there was an overbearing sense that if it is was not a direct contact with the past, it could be considered a close impression of this contact and the feel of something in circulation in 1846.

These were impressions gained in hand before the bonnet was worn as was no doubt intended. There was a sense of occasion as it was held aloft for a moment before being placed snugly on the head. Once on the head, one is struck by how imposing it feels, its presence is very marked and again stands in contrast to the softer fabrics and fit of a modern “woolly hat”. Despite this, it is easy to wear and it was quickly found to sit comfortably at a jaunty angle with little effort. There is little familiarity to be found in this with modern garments and by default it feels old. This sense of age was not only communicated through its feel but also extended to the olfactory senses. It smelled unfamiliar and certainly different to modern garments. The use of dyes and the types of wool had more familiarity with garments from a different time and served to reinforce the sense of age yet not antique.

The height of the bonnet is noticeable when being worn. Despite staying on with ease, the natural tendency of the wearer is to keep the bonnet upright. If worn in the same manner as the Sergeant in *Sergeant and Private of the 92nd Gordon Highlanders* (Ref: PGP HA 2661, Scottish National Portrait Gallery), the natural tendency is to keep the head up in what may be considered to be a smart and soldierly manner. This was a distinct feeling from that felt when wearing the bonnet when shaped as seen in Figs.9:18 to 9:26. The experience with the larger bonnet gave a sense having to remain erect in order to maintain the rigidity and demeanour of the Sergeant, seen in the caloype: *Sergeant and Private of the 92nd Gordon Highlanders* (see appendix A2).

At the time of writing it is only 6 months old, but repeated handling, bushing and a little rough treatment does not appear to have affected it. It retains shape and finish, which compares favourably with the durability of the extant bonnets.

It is ironic that the very act of curating and preserving an artefact (in this case knitted bonnets) has served to destroy its original purpose and relegated it to an article of controlled study. In their work on presenting the past in museums, Shanks and Tilley (1994, p.93) state that the truth in '...the artefact, patiently enduring time and subjective interpretation…' has limitations. The reconstruction as Shanks and Tilley (1994) discuss, can be presented in different ways offering opportunities for objects to be treated more in a manner to which the original was once treated.

The perception revealed by handling the object in an animated manner, as opposed to a static and delicate museum exhibit is discernible. For example, a mass in motion is quite simply different from the weight of a static artefact. The experience of handling, or even abusing, an artefact, is difficult to quantify, relate or even record, but serve as a tool to focus the mind. This suggests a number of arguments that confront the very nature of the museum collection and bring to question the value of the extant objects. It may be considered that a reconstruction has a clear advantage for the researcher allowing an artefact to be studied in different ways. It may be tested without undue concern for its damage or even destruction. This allows the student the facility to study, what is in effect the same artefact as the extant example, with the same rigour as can be done with modern articles. An accurate reconstruction allows for the study of extant artefacts outside there controlled (museum) environment.

Through the manufacture of numerous facsimiles, or reconstructed samples containing details of materials and methods of construction, distribution can be made aiding communication and experiment at numerous locations. The advantages of moving reconstructed samples and not people, presents financial and practical benefits.

By removing the inevitable barriers imposed through the limitation of extant objects it becomes possible make tangible information available *en mass*, perhaps on a commercial basis as seen in the marketing of images in museums and galleries.

Following this argument, it may be considered that the use of the museum exhibit has been superseded, as a source of empirical information, by the reconstruction. This inevitably places pressure on the fundamental value on the' accuracy' of the reconstruction. This would require a means of quantifying the value of the reconstruction in relation to the extant examples, known information, and speculative decisions made in its construction and how this relates to the researcher.

Summary

The accuracy of the materials and techniques used to produce the reconstruction have been compared with similar surviving examples. These comparisons have revealed that a close replication has been achieved both visually and texturally. Comparison with the calotype evidence has been made to evaluate the size, shape and behaviour of the reconstruction. These comparisons reveal close similarities between the reconstruction and original bonnets viewed from several angles. The first impressions revealed to the researcher by the newly constructed bonnet have been noted.

The researcher concluded that it was possible using experimental techniques to recreate a hummel bonnet that was close to the features of both extant articles and the images in the calotypes.

In addition, the reconstruction allowed further experimental research into features such as how the bonnet is worn, feels and moves, in contrast to the constraints of a museum artefact.

Chapter 10

CONCLUSION

Introduction

The role of experiment has long been established as an effective means through which to explore past aspects of material culture, architecture and site formation processes (Coles 1979, Mathieu 2001 etc.). Items of dress have not routinely been incorporated in experimental projects although where they have the focus has been on prehistoric or early historic examples (Michaelsen, 2002) As such it has been necessary to consider precisely how an experimental approach has been developed and applied to this aspect of dress.

Central to the approach adopted here has been the desire to develop an accurate, or near accurate, reconstruction of a bonnet, specifically one that is no longer extant, apart from its place in an early photographic image. To develop an accurate reconstruction it has been necessary to develop an approach that integrates artefact analysis with conventional and novel approaches to archaeological experiment. Through the detailed analysis of existing bonnets coupled with measured and formal analysis of photographic evidence it has been possible to gain a detailed insight into the materials and techniques used in the production of the hummel bonnet. Such observations have been critical in developing selection criteria for materials although such choices have been further informed by a series of targeted experimental trials (see chapters 7 & 8).

In terms of the final experimental reconstruction it has been possible to relate materials and technique to the final form whilst also exploring the fabric's structure and behaviour of the finished object. Whilst such objective insights to the bonnet have been valuable more subjective understandings of the bonnet have also been included. Such subjectivity has been considered suspect in many circles as it is rarely considered a robust form of knowledge. However, approaches have been developed which draw on the body of work loosely known as phenomenology (Ingold 2001) and which in turn provide a framework for the incorporation of subjective analysis (see chapter 2). This latter point is of critical importance and the bonnet is an artefact intended to be worn, that is used with the body in a specific manner. That such approaches might remain contentious seems to reveal a contradiction in the way we admit certain types of knowledge. For instance it is deemed perfectly acceptable for an artefact to be taken 'in hand' and subjected to scrutiny by the eye. Such inspection might allow us to assert the colour of the artefact, its surface appearance, through moving it between the fingers we might comment on the touch or the firmness of the fabric. We might even count the stitches and comment on the density of knit

and felt. However, we are less secure in the understandings that are gained when the bonnet leaves the hand and the gaze of the eye and takes up its normal position on the head. There is a definite understanding to be gained in wearing the bonnet. The effect on posture, the sense of its weight and critically the distribution of the weight are no doubt sensations that would have been experienced by any past wearer of the hummel bonnet. However, such experiences are somehow considered less trust worthy than those achieved by the hand and eye. It seems then that there is a hierarchy of knowledge that pertains to what sense organs we are using in scrutinising our study object. That knowledge borne of the hand and eye is somehow more trustworthy than the head (or scalp) – the intended destination of a bonnet -seems peculiar and not only demarcates a hierarchy of the senses (Howes 2004) but also hints towards a deficiency in our approaches to such objects.

Resolving this deficiency to a satisfactory point, especially from a theoretical perspective, is not the objective of this thesis. However, the issue has been acknowledged and a pragmatic approach has been adopted to admitting this kind of evidence to a wider synthesis. At the very basic level by dressing the body it has been possible to make direct comparisons with the evidence from original calotypes. It would seem unnecessarily abstemious to not adopt an embodied approach, if not to gain a understanding of how the dressed body 'feels' then at least to the comparative analysis of the bonnet at least in terms of how the bonnet could be worn. It is clear that further research and reconstruction can only add to our understanding of how such approaches can be further developed. Whilst some may argue that this should begin with the development of a rigorous theoretical framework it is thought that such approaches fail to recognise the wider value of practical work, that is the engagement with material. It is through the processes associated with the selection of material and technique along with the performance of knitting that the breadth of any theoretical framework might become apparent. It is then a considered conclusion of this thesis that practice and theory can and should not be separated as they are mutually constitutive; that is to say that the remit of any body of theory is best defined through an exploration of a practical context.

In order to understand the reconstructed bonnet from an embodied perspective a number of activities were undertaken whilst wearing the bonnet. Identifying the activities undertaken by a soldier of the Gordon Highlanders in 1846 is to a degree speculative, but a number of likely activities were identified and included in the study. The bonnet itself lent itself to been worn in a number of ways and these certainly affected the activities possible. For instance, when wearing it firmly planted on the hear in an upright position it was resilient to unseating itself and permitted a wide-range of postures. However, it is stated in military dress specification and supported by calotype images that the bonnet should be worn at a jaunty angle. As such

bonnet is worn in the position seen on the sergeant seen in calotypes 1 and 2 from the Appendix A. When worn as such one is much more aware of the weight of the bonnet. The asymmetric dress line provides a sense that the bonnet, although firmly on the head, is a precarious object which may topple if one is too exuberant. Instead, one is persuaded to adopt an upright posture and to be measured in one's action. The result is that movement becomes conscious and considered and often movement carries with it a sense of determined precision. All in all, the bonnet is an item of dress that declares its presence on the head in a very definite manner.

Fundamental to a soldier's duty in 1846 was the need to master the foot drill of the period. Executing the movements prescribed by the 1824 and 1833 drill manuals is perhaps the most appropriate use of the bonnet These movements are all based around the position of attention, which clearly requires an upright body with '..the head…erect,…' (Torrens 1824, p.3). The movements performed for this research included, turns at the halt (right, left and about) and the various marching steps. Whilst conducting this series of movements it proved to be easy to keep the bonnet firmly in position, in fact the bonnet encouraged one to keep the head upright. This appeared to be done via small and incremental *reminders* to the wearer. These reminders consisted of the bonnet being very stable whilst the head and bonnet were in an upright position, but proving to be increasingly more unstable as the head, and therefore bonnet, were allowed to incline in an unspecified manner. In effect these exercises were easier to perform correctly in this bonnet and incorrect postures were mediated by the sense that the bonnet was not under control.

The positions adopted for musketry practice (shooting) proved to be less comfortable as it is necessary to look along the pattern 1842 percussion musket and aligning the simple block rear and foresights with the target (see Calotype 11, Appendix A). Although remaining stable on the head its natural tendency is for the bonnet to incline to the right. This would not appear to interfere with the process of sight alignment, although making critical evaluation of shooting ball ammunition at a target cannot be attempted without specialist facilities. The position used to aim the 1842 percussion musket would inevitably change in 1854 with the introduction of the Minie Rifle with its extended range and variable leaf sight. This necessitates the need for the right eye to look along a range of differing settings and may affect the manner of wearing a bonnet.

To march in double time, in effect a controlled run, was used to move individuals and bodies of men at speed. Again Torrens specifies that the need to keep the '…head erect,..' (Torrens, 1824, p.16) although whether the reason for this is aesthetic or practical is not identified. In practice the bonnet remains in position although the need to maintain the head

and trousseau in an upright position is necessary to prevent it working loose and falling off. The feeling is uncomfortable and restricts what can be a demanding exercise.

Dancing has long been considered one of the social graces practiced and indeed demonstrated in public by Highland troops. It is recorded that in 1815 four sergeants of the '…Gordon Highlanders dancing reels at the ball… There was quite a crowd to look at the Scotch dancers.' (Miller, 2005,p.139), and in 1854 the 79th Highlanders on their way to the Crimean War were '…dancing a reel on stage…' (Newark 2009, p.106). Trials have revealed that the reconstructed hummel bonnet may only kept upon the head with difficulty whilst dancing. The steps required for jigs and reels require a degree of athleticism rendering the bonnet of this size quite impractical. It simply will not stay on.

The simple manner of storage is problematic. Experiment has revealed that, whilst kept in shape and placed carefully on a table top for instance, the bonnet retains its shape, but any attempt to flatten or roll the bonnet destroys the elegant, angular shape. Storage within a knapsack for instance would render the bonnet quite flat and distorted. This may be a pointer to the development of the flat glengarry shape.

The aesthetics of the bonnet leave the individual feeling impressive and presenting a well proportioned appearance, although the overriding impression is that the postures that can be adopted are limited. In practical terms, if the bonnet can be pulled down around the head it gives a less soldierly appearance but is warmer, more stable and thus rendering it more practical to the wearer. Examination of the images in figs. 9:18 to 9:27 displaying miss shaped bonnets worn by the rank and file suggests the bonnets were reshaped, or reduced in form to be a more practical approach to the method of wearing them.

Speculation on the evolution of the hummel bonnet would suggest that it had reached its maximum useful size. In the latter half of the nineteenth century the glengarry style prevailed and has remained in service to this day.

Modes of production and variability

Whilst the organisation of production has not been a key concern of this study numerous insights have been gained through the examination of existing evidence and the reconstruction of a specific example of a hummel bonnet. Through the comparison of extant bonnets it is apparent that a surprisingly low level of variability was achieved despite the supposed cottage industry method of their production (Mackie 1913, Mackie 1933, Hartley & Ingleby 1951, Bennett 1983, Rutt 1987)

All the bonnets, both civilian and military, share several common elements differing in only superficial ways. All the bonnets examined are produced from a course yarn spun into 2 ply, they are knitted in the round with stitches added to produce a disk like top. They are further knitted to take the bonnet body into the headband. All are shrunk to a form and are heavily felted to produce a solid durable article. In summary it is clear that there are many common elements in the production sequence (Chaîne opératoire) which suggests that was a recognised and shared way of going about bonnet production. This shared understanding was not limited to material selection but also extended to the techniques of production

Nonetheless, significant but superficial differences do appear with the finished, or blocked, shape and the design on the headband. Three of the bonnets studied demonstrate this point.(Figs 10:1, 10:2 & 10:3). The feather bonnet attributed 42nd Highlanders (Black Watch Museum acc. no. 1078/1) at first glance appears to be a large collection of feathers attached to a wire frame. However the base is a simple (and complete) hummel bonnet very similar to the reconstruction except perhaps a little more perpendicular in its blocking than the reconstructed bonnet. Despite being nearly hidden by feathers the hummel bonnet is the foundation to this bonnet and can be found without much difficulty. The knitted bonnet is stiffened with card and has a wire frame placed on top to support the feathers. If all additional decoration were removed a knitted bonnet complete with torre would be left.

Fig. 10:1, *Feather Bonnet and Hackle (c.1854)*, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1 c.1854

An example atributed to the 93rd Highlanders (fig. 10:2) takes the form of a Glengarry; a flattened bonnet which would have originally had the form of a hummel bonnet prior to felting and shrinking onto a board and pressed to give it its distinctive flat shape. The diced boarder is limited to alternate red and white yarn with fewer stitches to the check, but retains the same basic characteristics as the others.

Fig. 10:2*, Glengarry*, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.0007a Date c.1854

Fig. 10:3, *A Pillbox Cap, 2nd Royal North British Dragoons (Scots Greys).*Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle. Acc. No. 21215 Date c.1854

A pillbox cap atributed to the Royal Scots Greys (fig. 10:3)) follows the same form and method of manufacture but of a smaller and simpler design. The style desired by this cavalry regiment was for a smaller hat perched on the top of the head and held in place by a chin strap. The distinctive white Vandyke decoration is achieved through the introduction of white yarn in a staggered manner, as opposed to the diced manner with its vertical and horizontal method of changing colour.

The calotype image detail of the Sergeant of the 92nd Highlanders (fig.10:4) appears to contrast with the above bonnets in its large and apparently rigid appearance, although it retains all the common elements identified.

Fig 10:4, Detail from *Sergeant and Private of the 92nd Gordon Highl*anders. Scottish National Photography Collection Ref. PGP HA 2661

Together these examples suggest that the hummel form represents a basic element in head wear which was open to extensive modification. As such we can consider the hummel as an artefact that contains many techniques and materials that are common to other forms. As such it is the choices exercised in material and technique selection that would have formed a common understanding of how to go about the production of head wear. Ingold (2001) has suggested that we examine the ways we perceive the skills used in artefact production and highlights the importance of understanding skilled practitioners as operating ‘within a field of

forces set up through his or her engagement with the material;' (Ingold 2000, p.347). The interaction between the forces and materials not only conditions our means of production but also guides and suggest its use. From this perspective it is the hummel bonnet (and its constituents) that provides the material basis to the social relations that are configured around the process of production. The shared understanding of the process of production (and the opportunities for variation) provides a common vehicle for participating in the range of social interactions from material procurement to learning techniques.

Material choice is a critical concern as it is through sharing common materials that mutual understandings of techniques can be shared. For instance, the use of a coarse, and perhaps unyielding, yarn provides certain limitations whilst facilitating specific techniques. This guides the practitioner to use the yarn to advantage through use of the circular knitting technique in order to produce a bonnet of specific form and style. Through the shrinking process the practitioner engages with the natural qualities of the material to change and control its finished state. Such examples highlight the relationships that exist between forces (technique) and materials, and how shared practices and understandings provide the vehicle for establishing a bonnet as a focus for social relations.

The bonnet becomes a vehicle for social interaction through it acting as a focus for technique that is skilled bodily practice. Hand knitting requires a different approach to mechanical processes and needs the application of constant and reflexive '..care, judgement and dexterity…' by the practitioner (Ingold 2000, p.347). Although still controlled by a skilled operator the machine knits in a very different way. Machine knitting relies on a consistency of yarn, it is intolerant of variation in yarn strength and thickness, something that the skilled knitter can compensate for by exercising care and altering tension.

The hand knitted bonnet is produced through the application of looping yarn through adjacent loops of yarn with each step being monitored and judged to be in order before continuing. This then is a process of continual appraisal with the knitter ever making small adjustments to knit tightness and yarn tension to allow the finished form emerge. If the practitioner is not applying due care to each stitch, is not judging that each stitch fits into the whole, and is not dextrous enough to produce the whole item within the required parameters, the process may fail to produce something that is recognised by others as a fitting piece of headwear. Not only does such failure manifest itself as perhaps a lack of symmetry, or a flawed or holed construction with weak points, or an inappropriate size, it also results in the knitter being judged as not competent and likely to impact on their identity within the immediate or wider group. Our understanding of the social lives of those who knitted such

garments is woefully small although we do have some insight into the organisation of production (see chapters 6 & 7). It must then be understood as a priority for future research to better explore the social context of those engaged in the production of these objects for it is only through understanding the social conditions in which they emerge can we move towards a better understanding of the garment itself.

Ingold further describes a '…narrative quality..' (Ingold 2000, p.347) in the way he describes a production technique in which the elements demonstrate the telling of a story. Each line of the story is guided and hung upon the previous line of narrative. Although Ingold relates this metaphor to the weaving of a basket, the similarities to the circular knitting of a bonnet are clear. Each line or row forms the groundwork for the next and the whole must be written (or knitted) in a specific and relative manner, without which the story is disjointed and lacks narrative.

From this perspective, the study reported here can be considered as detailing one such narrative, that of the hummel bonnet. Understanding the general manufacturing techniques used to make this bonnets can, as suggested above, be applied to other variations. There are common threads to these stories but they remain as narratives which are yet to be written. In this light this work has provided a basis for further discoveries and trials to be made with other varieties of knitted bonnets.

The incorporation of decoration on military bonnets is one area which might be considered a research priority. Military bonnets are quite elaborate in their patterns and appear to serve little use except for decoration. There is no doubt contested historical significance to such features and whilst such histories are important there are other, perhaps more productive, ways in which we can start to understand such features. For instance, it may be possible that the use of a white yarn, which does not have the strength of darker, coarser yarns may be used to facilitate the bonnet stretching or shrinking to differing degrees. Equally, the bonnets worn by some members of the 92nd Highlanders have a slight concave shape to their sides. These features might have been an intentional or unintentional consequence of design development, material selection or technique. Nonetheless, such relationships remain to be established and should be further considered.

The skills dilemma

In his "rules of the game" Coles highlights the importance of truthful and honest appraisal of any experiment undertaken (Coles 1979). It is necessary then, to maintain an openness and critical reflection of the work undertaken and the decisions that inform the process. With this

in mind perhaps the most critical part of the work undertaken here is the skills of the investigator.

To place the researcher in the position of a nineteenth century artisan presents a dilemma. Whilst, it is difficult to acquire the materials, and an understanding of the techniques used, it is perhaps more difficult still to develop the appropriate skills to enact such techniques with the chosen materials. Hurcome also identifies a similar issue and highlights the '…skill level and practical ability of the experimenter.' (Hurcome 2008, p. 90) being of critical concern within the context of her own attempts to develop the skills of flint knapping.

There are two major aspects of concern. If the researcher is without the appropriate knowledge and skills to manufacture a specific artefact, the necessary skills must be gained within an acceptable time scale in order to allow a suitable reconstruction to be achieved. This is problematic as such skills are rarely achievable within the timescale of a modern research project. Gaining the appropriate knowledge and skills used by the original artisan are further complicated in that the modern investigator does not have the support and expertise often available within a traditional system of apprenticeship. The difficulty then in developing appropriate skills is not just that the temporal rhythm of production is likely to be very different for the modern investigator but more that the techniques are unlikely to be as refined as past practitioners meaning that the final product may be compromised. Even when the investigator is skilled in the materials and manufacturing techniques necessary to reproduce an historic artefact, their approach may be biased towards their own preference or specialist skills base.

Such issues were apparent whilst learning the skills necessary to produce a hummel bonnet. Whilst this investigator has a competent and broad range of craft skills, they are not well developed with regards knitting processes and material processing. In seeking expert guidance it was noted that knitting experts were inclined to doing things in their own particular or preferred way which was not always the methods that are required to produce an historical artefact based on artefact research.

For practical reasons then it was necessary to embrace compromise. In order to produce an appropriate reconstruction, the speed of production was far slower than would have been acceptable amongst the knitters of the nineteenth century. The thought, reflection and appropriate adjustment to the bonnet was scrutinised in more detail than would have been necessary by historic knitters. Quality control was maintained through a visual and tactile comparison with the available evidence, in this case, extant bonnet examples and the

calotype evidence; the absence of written records, reports, specifications, etc. present little alternative to this course of action. This approach was deemed successful in light of the comparative analysis undertaken on the finished artefact (see Chapter 9). Although this method meant that production times involved in the reconstruction were of very little value, it seems reasonable to assert that the material product was of value for comparative studies.

It is often considered that archaeological investigators are compromised by their lack of skills and abilities in manipulating materials in line with ancient techniques. Whilst it is apparent that developing a familiarity with materials and artefacts is one way to overcome this, in practice the degree of skill necessary is impractical for the cycle of most research programmes. As such there is a wide dependency of skilled crafters. Whilst this might seem a suitable solution it should be realised that such practitioners often have their own repertoire of techniques and whilst they might be highly skilful and perhaps even deemed traditional it should not be assumed they are more fitting than the semi-skilled attempts of a competent investigator. As such the skills dilemma in experimental archaeology is likely to remain. It is therefore even more critical that any such experimental campaigns are undertaken with a strong sense of critical reflection and honest analysis of both process and product.

Authenticity and re-enactment

The manufacture and use of reconstructed artefacts from the early nineteenth century has been practiced through the field of re-enactment for several decades and is constantly being used to illustrate the period via such organisations as English Heritage. Re-enactment has become a central and valuable resource amongst the many ways that history is communicated by the heritage sector. It allows the past to be realised and understood in a way that appeals to, and informs, the general public; quite simply it is easily, if not uncritically, consumed. Re-enactments vary in their accuracy and their use of historic data. For instance, the approach taken by organisations who recreate the Roman Army of the 1st century A.D. is often thought to be amongst the most accurate of re-enactment groups. Typical of these groups is the Ermine St Guard. Indeed such groups have been keen to establish strong links with academic groups and the relationship which now exists seems to be mutual in that re-enactors take detail from academic studies whilst academics learn about how elements of dress influence practice and in turn how the static remains of the archaeological record may become animated through practice. Such relationships are most recently demonstrated through the work of Graham Sumner in his work on reconstructing clothing of Roman soldiers (Nosch 2012, p.117). Typically archaeological finds such as Roman armour can be analysed, reconstructed and tested in a simulated Roman army

environment. Whilst such approaches have allowed for absences in the archaeological record to be inferred or archaeological evidence appraised this must be considered more the expectation than the norm. It seems that re-enactors are content to maintain a distance from academic communities and vice-versa. The nature of these relationships are beyond the remit of this thesis yet a caricature of these relations might contrast the disciplined academic resilient to speculate too freely on issues where evidence is lacking with the re-enactor who is happy to let their imagination develop freely when unrestrained by evidence. The tensions between the two approaches are palpable.

In line with such issues, observation of early nineteenth century re-enactment has revealed that a large proportion of re-enactors have priorities that are very different from the experimental archaeologist or historian. These priorities rarely include a critical evaluation of their reconstruction of the past and how it is perceived by the public and academics. They are rarely restrained by academic scrutiny and the sense of fun or entertainment that attends to such events inhibits many from taking such moments too seriously. It is often available finances, time and readily available information that guides such reconstructions rather that critical academic assessment. This might well seem a trivial point and if after all such events are simply a piece of fun should we really be concerned about the degree of authenticity reached in historical re-enactment? - as many re-enactors see such activities as a hobby for which they have to pay, it is natural that they are limited with self-criticism and wider academic scrutiny. Understandable though this might be, it should be remembered that many re-enactments take place against a back drop of significant heritage resources which are often curated by national agencies responsible for the care and dissemination of the National Heritage collection and education occupies a central role in this mission. To uncritically accept loose reconstructions could therefore be understood as being tantamount to saying that history does not matter; surely a problematic position for a heritage agency. We should be measured in our critique of such re-enactment groups yet it is surely crucial to remind ourselves that military dress is the means through which the power of the state was materialised at the level of the individual. It is though the uniformed body that the state has presented itself to its own subjects and the wider world. To understand the practicalities and politics of the uniformed body is then to understand the history of our nation state; hardly a trivial matter. The equating of military dress, even when re-enacted, with national historical narratives might seem unusual to those who see history as residing in pages of official and unofficial histories. It is then important to consider how historical narratives are endorsed and disseminated, from this perspective the re-enactment of historical events, becomes a means through which national histories are consumed and as such must be open to academic scrutiny.

Such loose attention to historical research and material evidence is clearly visible in the portrayal of the Gordon Highlanders illustrated in figures 10:5 and 10:6. It is clear that misshapen hummel bonnets reflect poorly the evidence available for these objects. The wrinkled bonnet top and bulging diced border are not identified in extant bonnets, the calotype images, or other sources. Fundamental is the use of what appears to be a separate diced border attached to a base and a blue cloth top gathered to fit (see fig 10:6) Although displaying several visual characteristics, these are quite a different article to the hummel bonnet they represent.

Fig. 10:5 (left) Author's image, Gordon Highlanders Re-enactors, Waterloo, 2010. Fig. 10:6 Gordon Highlanders, living history event, Archeon, 2012

Whilst this is understandable within the constraints of these groups it is felt that the acceptability of this must receive more academic consideration. It may well be acceptable but it is unlikely that such loose interpretations would be acceptable on display boards within a heritage site. In highlighting this it reveals a hierarchy of knowledge where text and visual presentation is placed above the material. This is a peculiar situation as the material is a much more tangible resource upon which to visualise history yet it is one which retains an elastic relationship with historical evidence. To deconstruct this relationship is a significant task and it as much points to value systems that exist within academia as it does to the seriousness with which heritage professional affords different types of evidence. To some extents it reflects a value system from a time past when material culture was deemed

uninteresting or scientifically sterile '…even intellectually arid and boring…' (Pfaffenberger 1992, p. 492). It is unlikely that such differential valuing of historical evidence will be resolved in the short term although it does call for a more rigorous appreciation of material culture, especially its material aspect, by the professionals and academics who oversee and curate our national heritage collection. In short such analysis forces us to declare than academic rigour has a significant role to play in guiding and critiquing such re-enactments.

Such issues might easily be dismissed but it should be remembered that national histories are often closely allied to ethnic histories and hold within them the potential to be used to significant political ends. Historical accuracy in heritage activities, which are vehicles for the common consumption of history, is important. Preventing a circle of misconception developing after the seeds of inaccuracy have been sown may initially relate to a simple garment or item of dress yet such items have at times come to represent ethnic icons and as such their use and history is political and often bears heavily on the present. For instance, in his respected work on early tartan, Scarlett highlights an example of an interpretation at the Culloden Centre of the National Trust for Scotland. The Battle of Cullodon is a pivotal moment in the history of the Scottish clan system, and is a focal point for not only native Britons but the worldwide Scottish diaspora. Any display of information at this location by a significant organisation such as the National Trust for Scotland has to be treated as influential. Scarlett comments that tartans on display at the Culloden Centre were not invented until the late 1940's, but tourists '…think they are being given factual information.' Scarlet further expands by stating that 'Once false information has been disseminated by a supposedly authoritative body it is virtually impossible to correct it.' (Scarlett, 1990 p. 24). It is in such ways that historical myths are established.

To conclude, in assessing the role of re-enactment one must decide if history matters, if it does then all presentations of history must be considered equally important. A man in costume might superficially appear less important than a page in an authoritative text yet we should pause to consider how each is consumed. Text is open to critique in ways that costumed re-enactment is not and as such it carries with it an insidious quality.

The power of the text

The bonnet reconstructed presents a considered reproduction as it would have appeared in a new or nearly new condition. This is the beginning of its reconstructed life but also the outcome of a research programme and it might be considered as some form of data, albeit encoded in material form. Whereas numerical data is easy to contextualise and consider, material outcomes from experimentation are more difficult to classify; further the range of

activities and experiences gathered throughout the process are more difficult still to categorise as data. Recording, presentation, and publication are then difficult challenges for experimental projects. With the hummel bonnet the duplication of its construction, use and deterioration require methods of recording information that covers the life of the artefact. Just as the written word or an architect's plan has limitations, so too do the results of experimental studies all be them very specific and different ones. There is a great sense amongst experimentalists that recording information as text or image is inadequate. These recording problems were exemplified when the author was in conversation with David Freeman of Butser Ancient Farm, Hampshire (September 2011). The conversation revealed changing aspects in the life of a round house that are not only difficult to quantify, but in some cases difficult to identify. Such an example is the effect generated by water deflected from the conical thatched roofs. This channelled water has the effect of collecting in areas around and away from the roundhouse wall; this moisture helps generate excessive vegetation in these areas, and with the successive decomposition produces a localised rise in the ground level. These unexpected and incremental changes are proving problematic within conventional recording methods.

It remains then a significant challenge to experimental studies precisely how to best present itself for dissemination. Again this is a significant issue as without moving towards a resolution in this matter it will be difficult to address the central issue highlighted in the previous section. To adequately record a life cycle of an object requires further study of the methods that might be available. These methods may include a diary of events, comments on deterioration, and repairs, etc., supported by a photographic record and critically may well extend to novel digital methods that seek to capture time geographies and the use of space and the body.

While such technologies are still very much emerging the development of more traditional approaches might include photography coupled with other means of image and sound capture. Whilst these might well offer a richer record of activities undertaken they retain difficulties for those hoping to take forward the dissemination of such studies as the printed text remains the most easily disseminated form of knowledge be that on paper or by the web. We are then as experimentalists faced with recognised issues but at present without the means to address these satisfactorily. A significant issue, so far not addressed, is the manner in which text is used within such studies. Experimental archaeology developed most rapidly under the banner of New Archaeology; a school of thought which championed functionalism and aligned itself closely to scientific discourse. A scientific style of report writing came to dominate and served to restrict many of the observations that were made by

skilled craft practitioners going about their routine experiments. Such paradigmatic censorship has not served the discipline well, with many key observations not being admitted to the text as they are deemed subjective or trivial (see above). Again this is an aspect explored but not fully developed in this study here. However, it is clear from some of the challenges that this thesis has confronted that if experimental archaeology is going to ensure its wider development and to better report its own doings then it needs to develop a much freer relationship with text and seek to address how it accounts for a range of 'data' that extends from the objective to the subjective.

Opportunities

The opportunities that are possible through studying with a tactile object are extensive and can be applied in many contexts. Working with a tactile object focuses and stimulates the mind. The completeness of the reconstructed artefact allows immediacy and directness of understanding that is lacking in the written word and only superficial with imagery. The nature of the artefact is immediately apparent without having to resort to time consuming reports. A precise awareness of weight, feel, behaviour, the way it can be worn are all quickly discovered.

This form of reconstructive research can also be applied to examples in museum collections when the original artefact is too rare or delicate to allow handling. This method of experimentation gives opportunities for individuals who would not normally find it easy to gain knowledge of old or rare artefacts. These may include individuals with impaired sight, learning problems, etc. enabling them to acquire knowledge that is both accurate and easily understandable. There is also potential application for people with dyslexia, enabling them to grasp and understand an artefact through a reconstruction, which is of special interest to the author, as this approach to gaining information has been invaluable to this thesis.

It has been established that the bonnet under study is contrived from a simple form that has been taken to extremes and manifests itself in examples such as the voluminous feather bonnet; this has parallels in the way the soldiers are formed into a contrived appearance. This may not only be seen in the recognisable way in which they are dressed but can also be detected in less recognisable way such as the way individuals are positioned into unnatural stances to suit the required style desired by the artist. By focusing on a single element such as the bonnet it has been possible to identify this contrived appearance and this certainly will have further implications worthy of study.

Through making the reconstruction the student has developed a skills base, along with an understanding of potential methods that could be reapplied in new contexts. With this knowledge a further study of similar artefacts will prove less confusing and a more confident understanding of the materials, processes, and terminology used has been developed. The development of reconstructive archaeological skills is likely to be progressive as are those of craft skills development.

It is apparent through the examination of extant bonnets that minor differences in production methods are obvious, which is not surprising in a cottage industry. It is suggested that there is a need to find two (or more) bonnets ideally from the same regiment and time period to allow a direct comparison to be made. Through analysis and comparison of colour, materials and method of construction, it could be possible to identify variations that were acceptable, and from this information speculate on what was considered unacceptable.

Aspects of the bonnet's construction and evolution have been discovered; the progression of shapes can be seen in other styles of knitted bonnet. What is apparently a structured and strongly decorated garment is little removed from the common and rudimentary piece of millinery. There seemed to be a need to take the simple bonnet to extremes, and it has become apparent that the processes used to make the reconstruction have strong similarities to other types of bonnet. As an understanding of commonalities within the range of knitted bonnets has been discovered it would present an opportunity to establish a 'family tree' of differing patterns. This would demonstrate the progression of traditional methods of construction and materials in conjunction with demands of the market.

A study of the images below show men of the Royal Scots Greys in 1815 wearing a distinctive style of bonnet, and are perhaps the only images of this pattern of headdress.

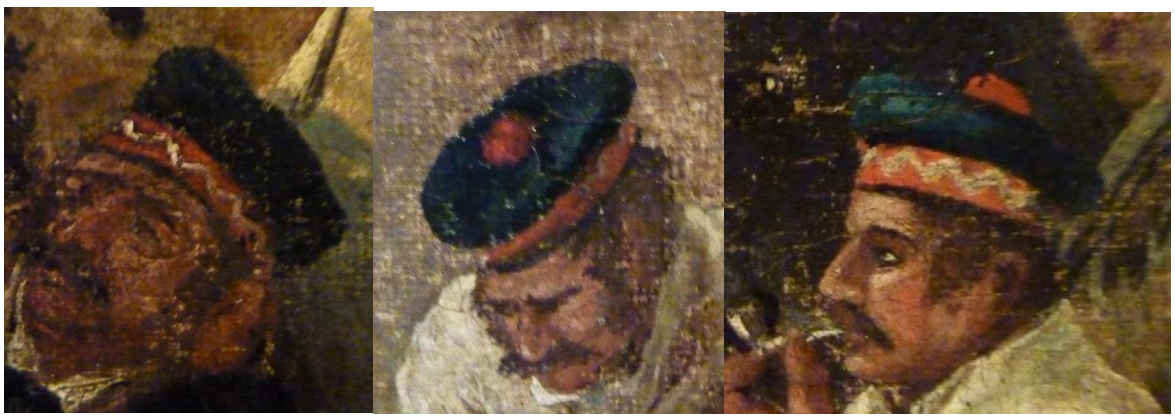


Fig 10:7, James Howe, Details from *The 2nd Dragoons in bivouac during the Waterloo campaign 1815.* Scottish National War Memorial Museum.

Through the understanding of the production methods used at this time it is possible to make assumptions as to their probable method of construction. The characteristic Van Dyke (Zig-Zag) decoration is probably done in the same method as the later Crimean War pattern studied (see fig. 10:3). Characteristics such as the dark blue line around the bottom edge of the bonnet are vital to preserve the integrity of the knitting if the van dyke decoration is to extend to the top and bottom edges of the red area. Despite the lack of precision contained in these images the Van Dyke decoration appears to have the same characteristic proportion dictated by the knitting process.

A logical progression for a reconstructed artefact is to monitor and record its ageing process. As identified with Coles early studies with earthworks (Coles 1973 & 1979) it is important to understand the processes that affect antiquities and by understanding these processes provide a method of comprehending the relationship between the newly created and the antique. By keeping, wearing, even abusing the reconstructed bonnet, not only can we understand its qualities, but we can be assisted in understanding the state of extant objects.

As any item of dress requires to be considered as part of its wider sphere, the use of the same methodology used here could be applied. A rational approach would be to reconstruct a complete figure, perhaps recreate the whole image recorded on one of the calotypes (see appendix A). Through a more comprehensive reconstruction the same processes can be tested, not only for their probable nature, but allowing a better understanding of available information in its larger and presumably interactive environment.

The research question answered

It is evident from this targeted study that by the application of principles of experimental archaeology, a better understanding of period costume, in this case the hummel bonnet, can be made. This specific application has developed particular methods of understanding that not only enlighten specific aspects of our knowledge but suggest further avenues of research. The principles identified in chapter 1 not only apply to the finished characteristics and appearance, but allow a deeper understanding of their composition and construction.

The conclusions covers elements that are not only specific but follow general trends covering the strength of the research, the weaknesses of this approach, warnings for future use and opportunities for further research and use.

The origins, documented history, and continuing use provide a testament to living history. The methods used to produce the knitted bonnet (and other aspects of knitting in general) do not appear to have been documented. It would appear to be not only unnecessary, but impractical to document practices within a society where skills can be demonstrated and learned at an early age. The scenario of a cottage (and relatively poorly paid) industry using valuable time to write, or spending limited cash on a publication, seems improbable and impractical. The author's own work producing the reconstruction, proved it to be simpler and quicker exercise than producing the documented version in this thesis, and supports the assumption that bonnet making skills are better learnt through practice and craft rather than by following a documented forms.

The origins and continuing choice of the traditional disk shaped bonnet is difficult to quantify. The familiarity gained in this thesis suggests that the combination of the spherical skull and the facility of knitting in the round converge at a natural point of genesis. The yarn commonly available to rural families can be turned into coarse yarn with minimal skill and investment in equipment. With the use of simple knitting pins, the coarse yarn can be knitted into various forms using conventional techniques, as demonstrated by Kiewe (1971, pp.105 – 106) with his investigation into Roman knitting in the round. Combined with the exploitation of the exterior cuticles of the yarn (Galeskas 2003, p.3), and the natural tendency of wool fibres to lock together in the fulling process enables the knitted yarns to create a strong dense material. These elements present an opportunity to provide a durable bonnet that meets the need for a serviceable and necessary head covering for a life spent predominantly in the open air.

The reason for development of the form adopted (see chapter 6), is not apparent, but the common flat form has demonstrated its practicality, as can be seen with a similar forms (typically the beret) being adopted universally which can be seen through its use by a large proportion of land forces throughout the world. The popularity of circular and flat form of hat frequently sees appearances as a fashion staple (see fig. 10:8) or even social statement (see fig. 10:9)

Fig. 10:8, The Daily Telegraph, 26-10-12, article on the popularity of the beret in France

Fig. 10:9 Che Guevara, Time Magazine, 8th August 1960

Knitting is a versatile and forgiving technique compared with, for example, cutting cloth for use in millinery, which is unforgiving and may include significant loss of material. Generally hats require rounded shapes of material. Specifically if the production of the hummel bonnet was to be done with woven fabric it would require two disks cutting from a rectangle of cloth. Not only would this method waste the fabric removed to form a disk but waste would be

made by the necessity to take a circle from the centre of one of these disks to provide a hole for the head. The fabric too has to be woven on a loom, requiring significant capital investment. In contrast knitting is effectively 100% efficient with negligible loss of materials; even a badly knitted piece can be unpicked without loss of yarn. Further the skills employed can be learnt without a reliance on complex machinery and needles require little capital investment.

The study undertaken here has demonstrated how knitting technique can be gained relatively rapidly and put to good effect. Knitting in combination with felting also provides the basis for the production of a wider repertoire of garments. A significant example for the military was the provision of the 'Balaklava' helmets to troops in the Crimean War (Lambert & Badsey 1994,,p.159), and demonstrates the adaptation of conventional techniques to new demands.

It seems important that the hummel is the form that it is; it stands proud on the head and emphasises the individual. This was not something which just happened but should instead be seen as something which is the direct result of specific material selection and the employment of a range of techniques including knitting blocking and felting.

That the form is maintained and is consistently worn by individuals (see appendix A) suggests the vertical dimension of the hummel was considered significant. It served to elevate the posture of the individual and quite literally make them stand out from the crowd (the civilian or other) yet it also homogenised those wearing them so they could be seen as a group.

Such strategies are not uncommon for military units with almost all examples of martial dress having an element of head gear. The head is of course a vulnerable aspect of the body yet it is also probably the most significant part of the body, as such its adornment is not simply functional for its protection but will carry with it symbolic aspects which are used to signify the character of the political institution responsible for gathering such a group together.

Summary

This thesis set out to explore the potential of using experimental archaeology to inform the reconstruction of aspects of military dress. In doing so the role of the garment, implications of its production and the significance of it were considered along with the current state of historical re-enactment. By producing a reconstruction on a scale of 1:1 the investigation process is empowered to take a realistic (or a best understood) and realised approach to dressing and recording the body.

It is concluded that experiment does have a role to play but this role is neither simple nor as might have been anticipated. Whilst experimental approaches might have been assumed to simply guide practice and ensure accuracy perhaps the most valuable aspect has been providing an academic context or framework from which to undertake critical review of the practices undertaken. It is this aspect which is so clearly missing from existing re-enactment activities and it is no doubt here that academic practice can perhaps most valuably contribute. There are still issues which remain to be resolved most notably the difficulty in reconciling objective and subjective approaches to experimentation. Traditionally, experiment has aligned itself with objective approaches but the focus reported here on dress has highlighted the need to reconcile subjective approaches which include the body in any analysis. These issues are not as yet resolved but in highlighting the problem then it might at least be possible to think through important issues in further work.

By selecting a single aspect of dress, the bonnet, the research (and therefore the reconstruction) has been deliberately restricted, but this by no means restricts the future applications to a wider field of study. On the contrary, it demonstrates a methodology and practice that demands to be used in the study of costume in a far wider context.

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APPENDIX A - MASTER LIST OF CALOTYPES

Calotype 1 - Print

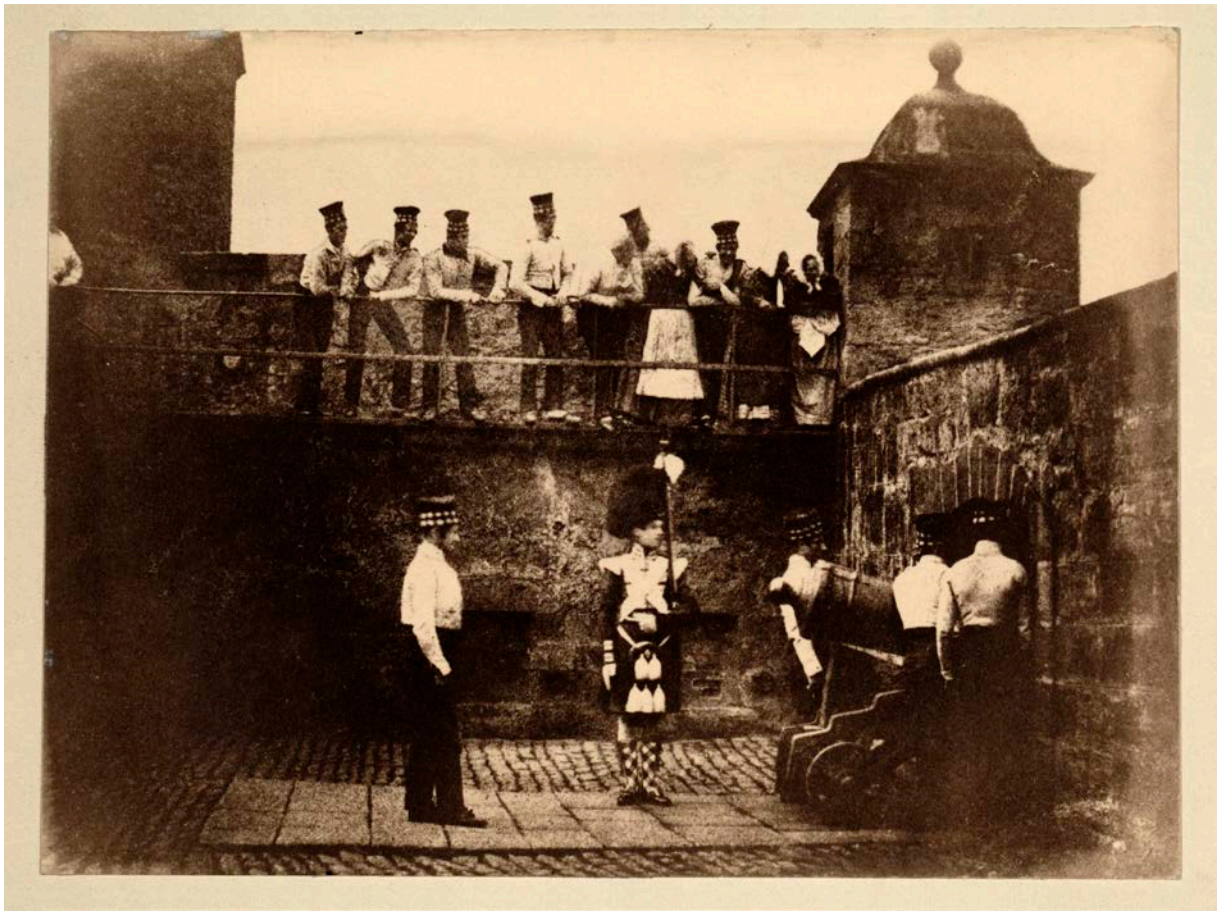
Title: 92nd Gordon Highlanders and their wives at Edinburgh Castle

Reference: M. 1937.119.11

Artists: Hill and Adamson

Collection: National Museums of Scotland.

Date: 1846



N.M.S. on line I.D. 000-000-100-254C

Dimensions 14.8 cm x 19.8 cm

Image taken at the Northwest end of the Forewall Battery, Edinburgh Castle, looking North West.

Calotype 2 - Print

Title: Sergeant and Private of the 92nd Gordon Highlanders. Known as 'The Porthole'

Reference: PGP HA 2661

Artists: Hill and Adamson

Collection: Scottish National Portrait Gallery. Scottish National Photography Collection

Date: April 1846

Size 19.1 cm x 13.9 cm. Bequeathed to SNPG by James Brownlee Hunter, 1928. This image also in the University of Glasgow Special collection (ref. no. HA0399). Image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 3 - Print

Title: Soldiers with child sat on gun

Reference: M. 1953.538.2

Artists: Hill and Adamson

Collection: National Museums of Scotland.

Date: 1846

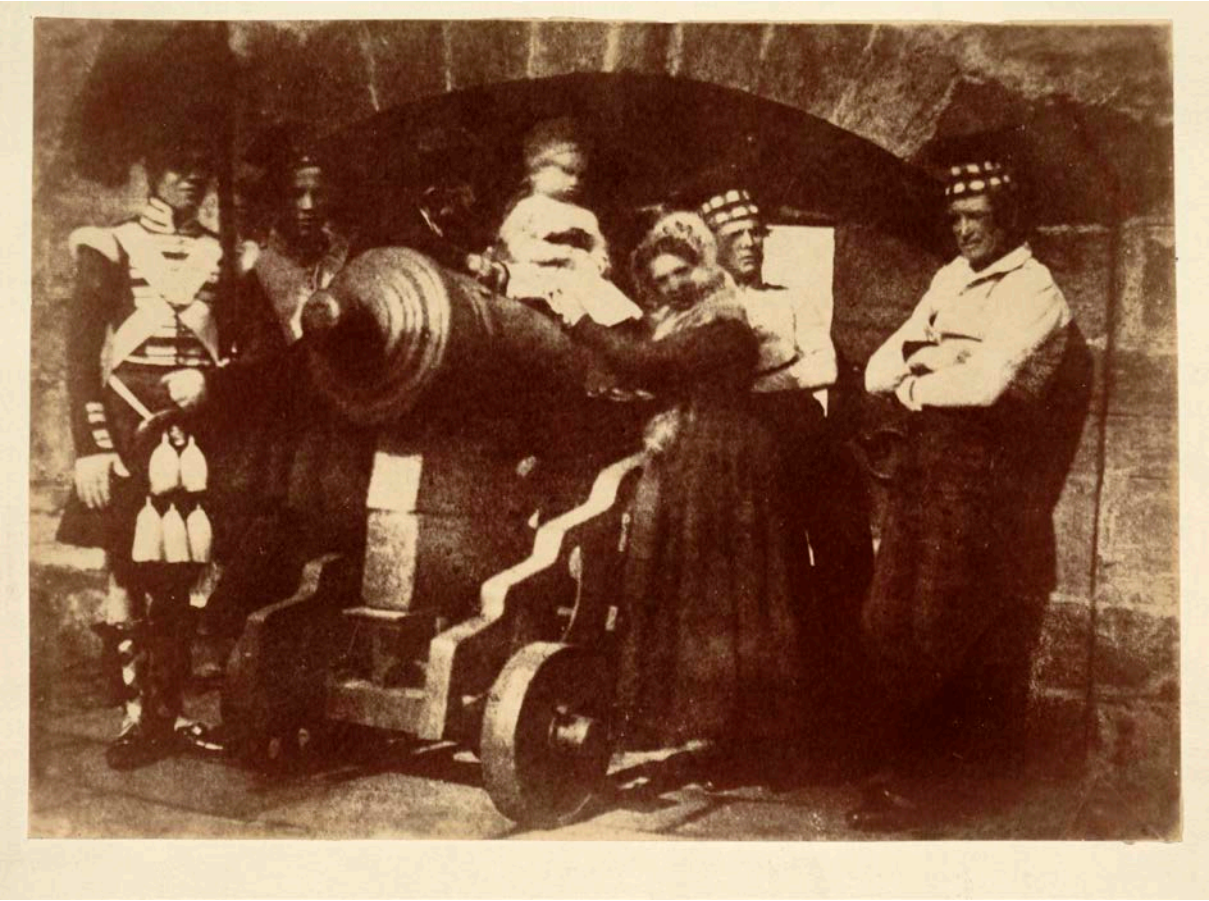


Image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 4 - Print

Title: Soldiers with drummer with drum on back.

Reference: T.1977.4.7

Artists: Hill and Adamson

Collection: National Museums of Scotland.

Date: 1846

1st from the Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 5 - Print

Title: Soldiers in Edinburgh Castle

Reference: 4141

Artists: Hill and Adamson

Collection: Capital Collections (Edinburgh City Libraries)

Date: 1846

Print size 16 cm x 21.7 cm

2nd from my Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 6 - Print

Title: 92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.

Reference: PGP EPS 15

Artists: Hill and Adamson

Collection: Scottish National Portrait Gallery. Scottish National Photography Collection

Date: 1846

Image size 20.8 cm x 15.7 cm

This image in Sara Stevenson, (2006), *Facing the Light The Photography of Hill and Adamson,* Scottish National Portrait Gallery. It is titled *Reading the Orders of the Day, August 1846.*

3rd from my Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 7 - Print

Title: *Officer of the 92nd Gordon Highlanders Reading to the Troops, Edinburgh Castle*

Reference:. Met-3274

Artists: Hill and Adamson

Collection: The Metropolitan Museum of Art, New York

Date: 1846 April 9th

Image size 20.8 cm x 15.7 cm

This image is reproduced as *Reading the Orders of the Day, August 1846* (page 46, Sara Stevenson, *Facing the Light, the photography of Hill and Adamson,* Scottish National Portrait Gallery*)*

4th from my Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 8 - Print

Title: Sargeant of the 92nd Gordon Highlanders reading the orders of the day. Edinburgh Castle.

Reference: PGP HA 4557

Artists: Hill and Adamson

Collection: Scottish National Portrait Gallery. Scottish National Photography Collection

Date: 1846

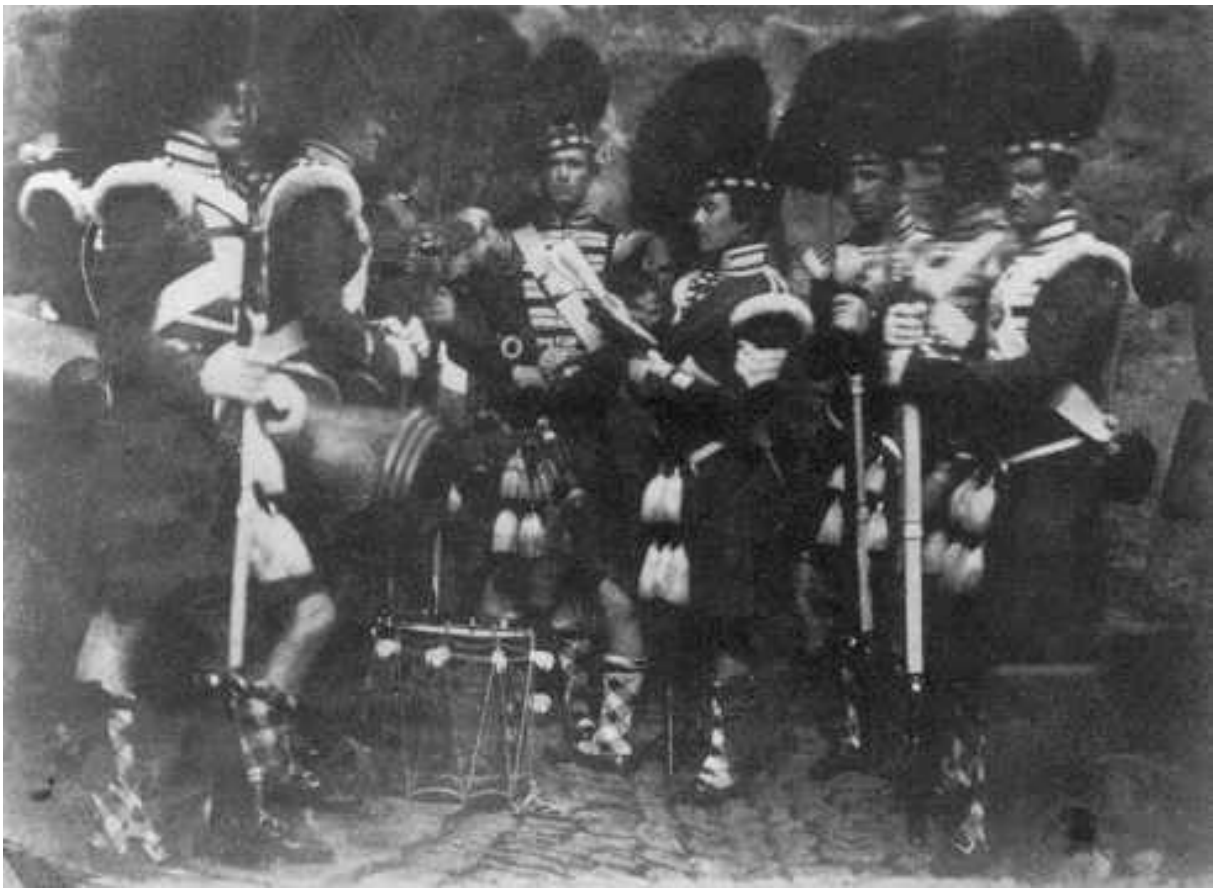


Image size 14.7 cm x 19.7 cm

This image is reproduced as *Orders of the Day* (David Bruce, *Sun Pictures, the Hill-Adamson Calotypes,* Studio Vista).

5th from my Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 9 - Print

Title: 92nd Gordon Highlanders at Edinburgh Castle

Reference: PGP HA 347

Artists: Hill and Adamson

Collection: Scottish National Portrait Gallery. Scottish National Photography Collection

Date: 1846

Print size in SNPG collection 19 cm x 14.1 cm

From my Suggested Chronology, image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 10 - Print

Title: Piper and Drummer of the 92nd Gordon Highlanders, Edinburgh Castle.

Reference: PGP HA 346

Artists: Hill and Adamson

Collection: Scottish National Portrait Gallery. Scottish National Photography Collection

Date: 1846

Image size 20.8 cm x 15.7 cm. Image taken at the central port (number 3 of 5 gun ports) of the Forewall Battery, Edinburgh Castle.

Calotype 11 - Print

Title: Soldiers Shooting (author's title) Image taken from (David Bruce, *Sun Pictures, the Hill-Adamson Calotypes,* Studio Vista)

Investigations with N.G.S., N.M.S., Edinburgh City Libraries, Glasgow University Library, and on line investigation have not been able to locate this print

Calotype 12 - Print

Title: Edinburgh Castle: Mons Meg cannon with standing soldier looking at seated top-hated gentleman sketching

Reference: HA0400

Artists: Hill and Adamson

Collection: Glasgow University Library, Special Collections Department.

Date: 1846

Print size 24.9 cm x 32.2 cm

Location identified as the North side of St, Margaret's Chapel, Edinburgh Castle. Facing West

Calotype 13 - Negative

Title: Edinburgh Castle: Mons Meg (cannon)

Reference: GUL0462 (HA 04 62)

Artists: Hill and Adamson

Collection: Glasgow University Library, Special Collections Department.

Date: 1846

Positive image taken from digitised paper negative. Inscribed in ink ‘Negative by D.O.Hill RSA 1840 of Rock House Calton Hill The property of Francis Caird Inglis F.S.A. of Rock Hiouse Calton Hill’

Negative size 32.9 cm x 41.1 cm

Location identified as the North side of St, Margaret’s Chapel, Edinburgh Castle. Facing North

Calotype 14 - Print

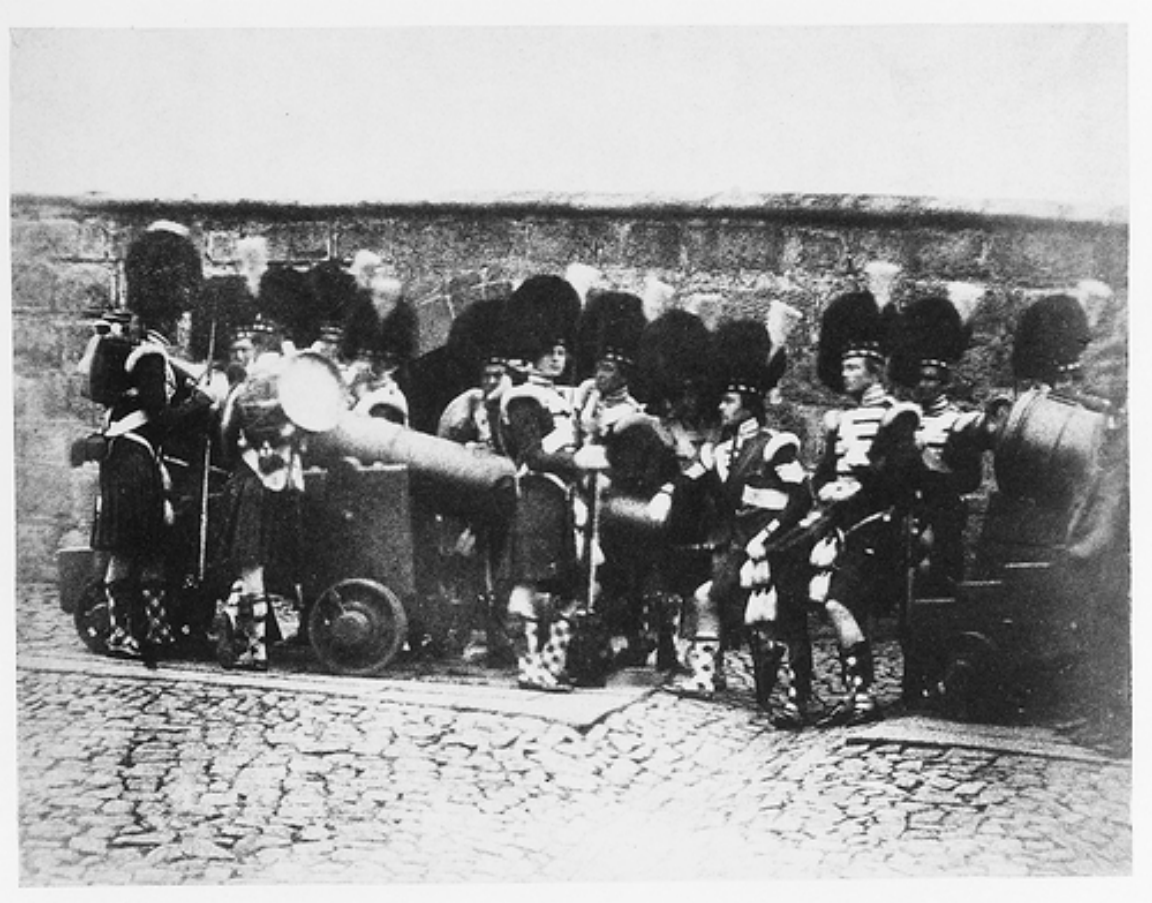
Title: Group of the 42nd Gordon Highlanders with Artillery

Reference: 1981.1229.37

Artists: Hill and Adamson

Collection: The Metropolitan Museum of Art, New York.

Date: 1846



Location – Middle gun port, Forewall Battery, Edinburgh Castle.

APPENDIX B - RECORD OF EXTANT ARTEFACTS

Artefact Record 1 - Stewarton (Killmarnock) Bonnet. Collection of the Dick Institute, Killmarnock. (Dumfries and Galloway Council). Acc. No. 1982/0028/0002

Date Not recorded

Dimensions 11 ¾ inches in diameter. 1 ¾ inches high diced border – each dice/square 3 x 3 stitches – therefore 9 stitches high in diced border

Ornament Red toorie and diced border

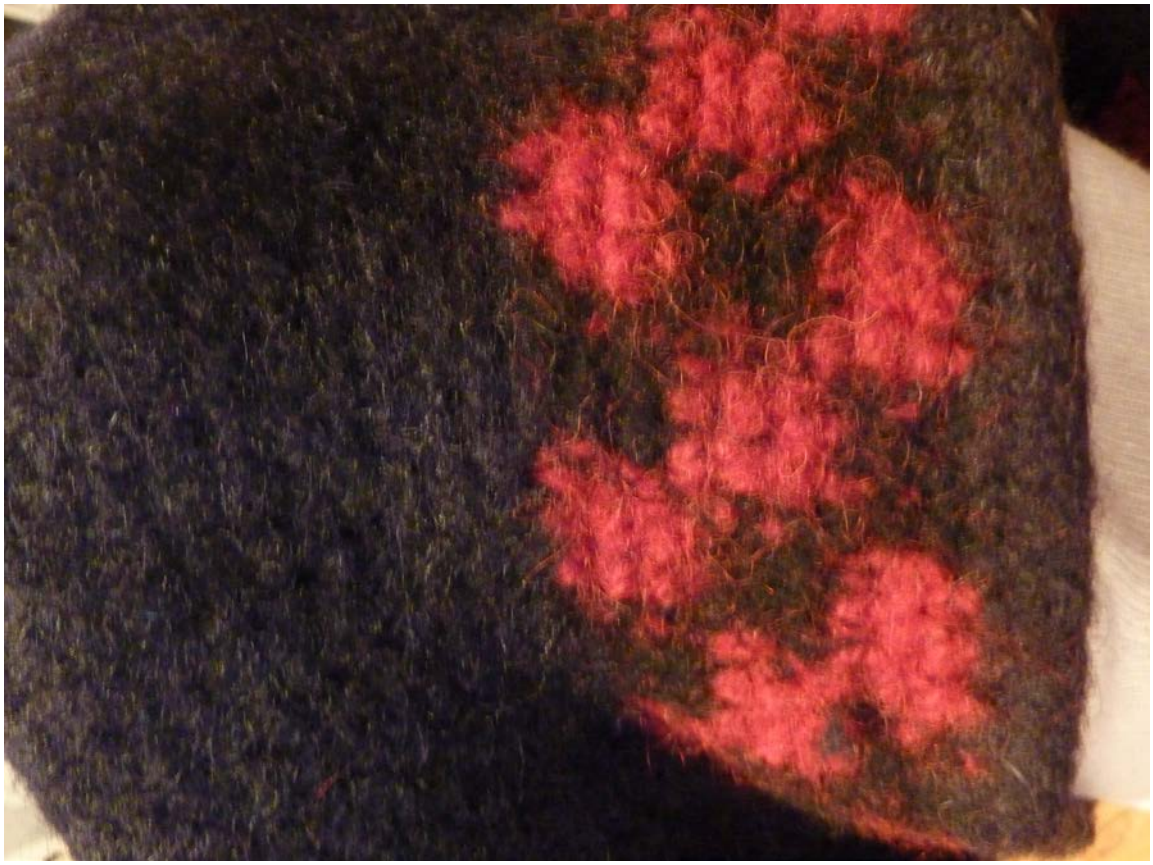
Colour Blue and red

Materials Wool

Techniques of Manufacture Knitted in the round. Style of knitting needs to be identified. Hand knitted

Function Headwear, Civilian

Comments Some what softer and less milled than most other knitted bonnets examined.



Artefact Record 2 - Stewarton (Kilmarnock) Bonnet, collection of the Dick Institute, Kilmarnock. Accession no. 1913/0006/0000

Date Pre 1913 (Date Jan 1913 inside bonnet)

Dimensions 11 3/4 inches in diameter

Ornament Red toorie, white diced border

Colour Brown/green, red white

Materials Wool

Techniques of Manufacture Knitted in the round

Function Headwear, civilian

Comments The bonnet is very stiff. It is unlined. The dicing squares appear to be 3 x 3 stitches. 18 white and 18 brown per row, therefore 108 stitches in the round

Artefact Record 3 - Kilmarnock Bonnet. Collection of Dumfries Museum and Camera Obscura, Dumfries. (Dumfries and Galloway Council). Acc. No. DUMFM:1953.169

Date c.1783 (only reference is the accession label)

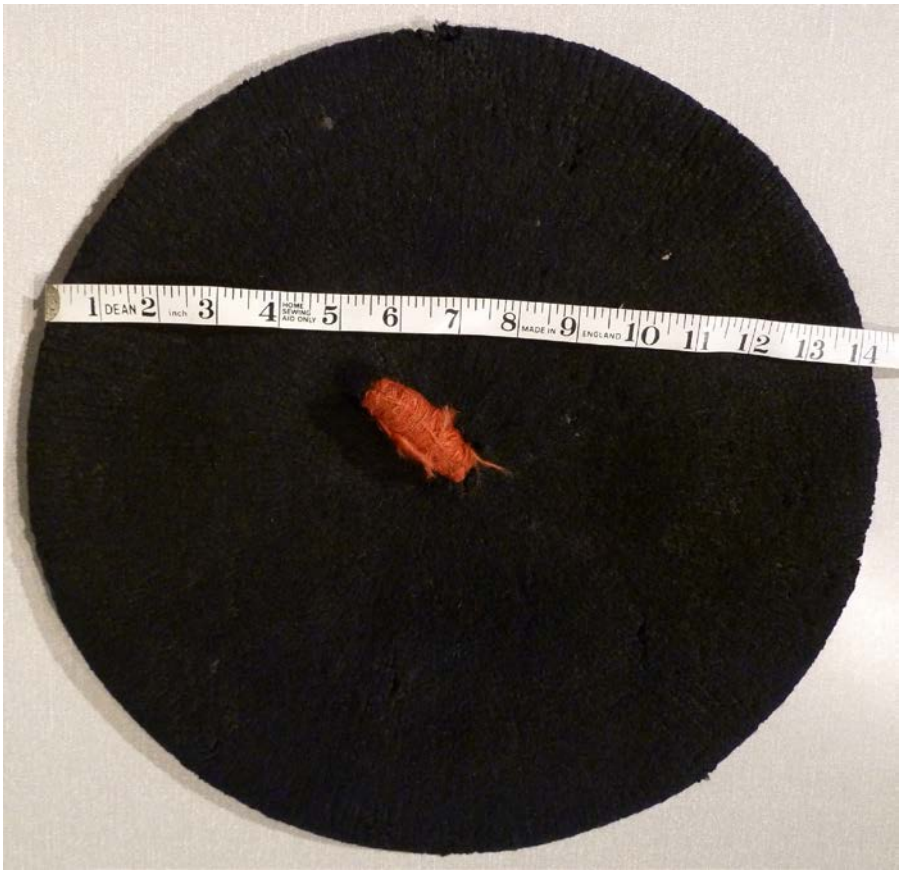
Dimensions Very large

Colour Black/blue

Materials Wool (thick yarn, perhaps 4ply)

Techniques of Manufacture Knitted in the round

Comments This bonnet was probably knitted in Kilmarnock in the 1780s.

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Artefact Record 4 - Killmarnock bonnet. From the collection of Dumfries Museum and Camera Obscura, Dumfries. (Dumfries and Galloway Council). Acc. No. DUMFM:0207.36

Date Unknown

Dimensions 11inch diameter

Ornament red toorie

Colour Black/blue/brown

Materials Wool (thick yarn, perhaps 4ply)

Techniques of Manufacture knitted in the round

Comments Nothing known

Artefact Record 5 - Diced Blue Bonnet. From the Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. A793

Date c.1854

Dimensions Diced border 2 inches high, Diameter 61/2 inches

Ornament Diced border, cap badge, toorie

Colour Blue, red, white. silver

Materials Wool, white metal

Techniques of Manufacture Knitted in the round

Function Undress cap.

Comments From Accession note in the Black Watch museum " Diced Blue Bonnet. Foundation of Feather Bonnet as supplied to Bonnet Cochins (sp?). Often worn as Forage Cap, especially in the Crimea.

It was donated by Lt A K McLeod on 7th March 1947."

The size of the article, the lack of a lining and the fine finish leads to speculation that it was intended to fit over an officer's undress peaked cap. The regimental badge conforms to the pattern used on the front of offices' undress cap in the Crimea

Artefact Record 6 - Feather Bonnet and Hackle, Regimental Museum of the Black Watch, Perth, Scotland. Acc. No. 1078/1

Date c.1854

Dimensions 11" high from bottom of headband to top of hackle, Hummel bonnet 51/2" high, Wire frame 51/2" high, Diced border 3" high, Paste board liner 51/4" high

Ornament Ostrich feathers, hackle, diced border, cockade, regimental badge, ribbon.

Colour Red white and blue diced border. Black ostrich feathers,\Red hackle

Materials Wool Knitting yarn, the woollen yarn, very coarse in texture, 2 ply, kemp fibre content. Ostrich feather, Steel wire, Velvet binding, Silk ribbon, cord, linen thread, brass, badge. Pasteboard.

Techniques of Manufacture Makers name inside bonnet reads "Buckmaster & Co London Dublin" shown around Royal Arms. The bonnet is built upon a complete Hummel Bonnet. The addition of a wire frame and feathers gives it it's characteristic shape.

The hummel bonnet is Knitted in the round from centre to form the top, the knitting is then taken straight down on headband section. Headband section has the characteristic diced border design incorporated through knitting with contrasting wools . Each square of dicing appears to be 8 stitches x 8 stitches. Therefore as the bonnet as 24 squares of dicing in alternate colours the whole border is done in c.192 stitches in the round.

The bonnet is stiffened with a rectangle of pasteboard.

A half sphere constructed of wire is stitched to the top of the hummel bonnet and is coverd with black cotton fabric. A gap is left at the right hand side of this covering to allow the ostrich feather 'tails' to be tucked inside when the hat is in storage or worn inside an oilskin cover.

The ostrich feathers and tails are stitched to the wire frame and fabric covering to conform with the regimental method of dressing a bonnet.

The feather bonnet is lined with silk and has a leather sweat band.

Function Headgear worn in full dress.

Comments Worn by Captain Sir Peter Arthur Halkett of Pitfirrane, Fife, whilst serving in the 42nd (The Royal Highland Regiment) Regiment of Foot at the Battle of the Alma and Siege of Sebastopol

Artefact Record 7- Glengarry, Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.0007a

Date c.1854

Dimensions Hat proper 111/2" long, Hat proper 51/4" high, Length of ribbons 8"

Ornament Red and white checkers, ribbons, grenade badge on red backing

Colour Indigo blue, red, natural white, scarlet red toorie, black ribbon.

Materials Wool Knitting yarn, worsted type fabric, linen thread, brass buttons. The woollen yarn, very coarse in texture, 2 ply, kemp fibre content. Brass Grenade Badge on scarlet wool backing. This backing has a white cotton centre denoting a superior grade fabric. Lining of natural linen. Linen thread, black ribbons

Techniques of Manufacture Knitted in the round from centre,

The Checked border is made up rectangles of 4 x 4 stitches, Therefore with 38 alternate red and white checkers a total of 152 stitches in total

The bonnet is lines throughout with natural linen. The lining to the top of the bonnet is cut to an oval shape with pointed ends.

The bonnet appears to have been knitted in the round using the same techniques used for a Hummel bonnet. I would suggest that the bonnet was blocked onto a pointed oval shape.

Function Worn as undress replacement for full dress feather bonnet.

Comments Worn by Sgt, David Peter Duff Philips, 91st Highland Regiment of Foot in the Crimean War. Sgt. Duff Philips was severely wounded at the Battle of the Alma, September 1854.


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Artefact Record 8 - A Pillbox Cap, 2nd Royal North British Dragoons (Scots Greys).Regimental Museum of the Royal Scots Dragoon Guards, Edinburgh Castle. Acc. No. 21215

Date c.1854

Dimensions 33/8" high, 71/4" across top from front to back, 61/4" across top. Toorie 1" diameter. Lining 3" deep, Button 9mm diameter

Ornament Red toorie, white Vandyke headband 14point v and 14 points ^, two brass thistle buttons

Colour Indigo blue, natural white, scarlet red toorie

Materials Wool Knitting yarn, worsted type fabric, linen thread, brass buttons. The woolen yarn, very coarse in texture, 2 ply, kemp fibre content.

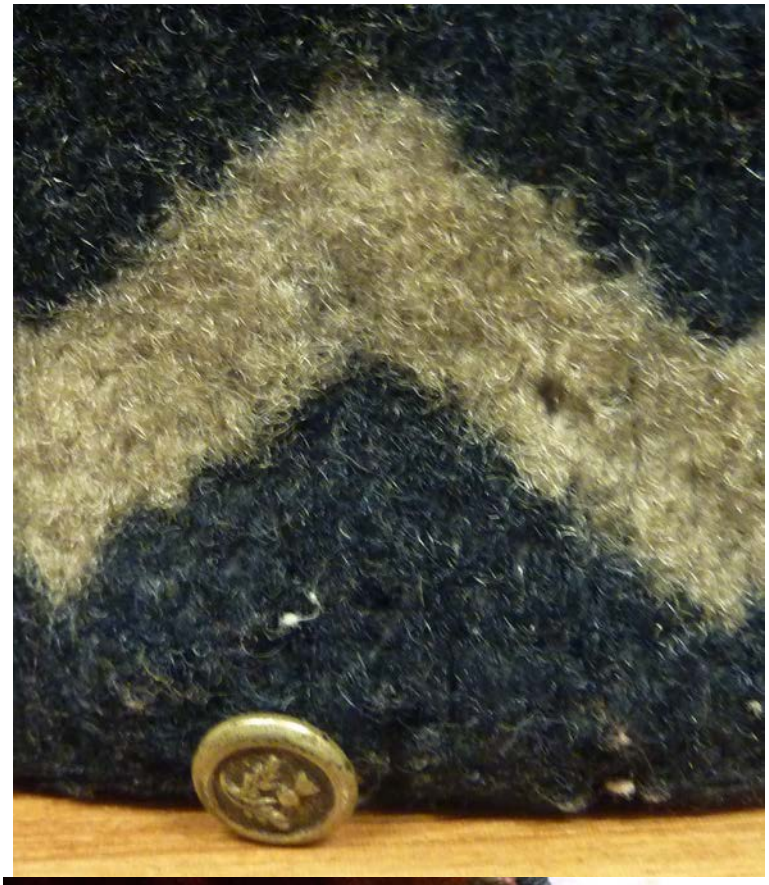
Techniques of Manufacture Knitted in the round from centre, taken straight down on headband section. Headband section has the Vandyke design incorporated through knitting with contrasting wool. Each diagonal bar appears to be eight stitches long. Therefore 16 stitches for one x up and down decoration, and therefore c.224 stitches in the round.

The headband is stiffened with a worsted lining. Lining to headband only (not top) tack stitched to woollen outer. The whole appears to be blocked to shape on the oval

Toorie made of padded fabric probably on a button.

Function Worn as undress replacement for full dress bearskin cap.

Comments Worn by Pte John McLaren Russell During the Crimean War, 1854 – 1856. Donated by Willie Bootland.



Artefact Record 9 - Knitted Woollen Cap, Regimental museum of the Duke of Wellington's Regiment, Bankfield Museum, Halifax. Acc. No. DWR.174

Date First half of the 19th century

Dimensions 250mm across crown

Ornament White tuft (torrie), White band, Embodied 33

Colour Dark Indigo blue, Natural white, Red embroidery

Materials Woollen yarn, Linen

Techniques of Manufacture Knitted in the round. For further details see "Knitted woollen cap at Bankfield Museum, Halifax" by Ruth Gilbert (2010)

Function Undress cap, used to replace the full dress shako

Comments Given by The Staffordshire Regiment in 1970 to the Duke of Wellington's Regimental Museum. Identified by W.Y.Carmen as a "cap comforter" c.1830, for the 33rd Regiment.

A count of the number stitches around the edge of the bonnet top reveals around approximately 140 stitches. The white band has 112 stitches around it. This count is very difficult to establish as the stitches are difficult to identify.

Through handling the bonnet it is possible to establish that the blue sections of the bonnet are considerably thicker than the white. Comparison with my knit samples reveals that the blue sections are comparable with the Welsh mountain Yarn and the white comparable with the two ply carpet yarn.


33

Artefact Record 10 - The Jacket of Corporal Joseph Dagley is from the collection of the Regimental Museum of the Duke of Wellington's Regiment, Halifax, West Yorkshire. The garment at the time of recording has not been given an accession number.

The overall appearance is that of a waist length jacket with sleeves, commonly called a *Shell Jacket*. It is red with white decoration and white metal buttons.

It is of the same general appearance as a Shell Jacket of the 87th Foot c. 1808-1850 (Accession no. Kirk 402) in the collection of the Castle Museum, York, and an Other Ranks' Shell Jacket c. 1848 of the 13th (1st Somersetshire) or Prince Albert's Regiment of Light Infantry (Accession no. NAM. 7905-24) in the collection of the National Army Museum, London. This general appearance includes aspects such as a well tailored fit, the use of a similar weight and colour of fabric, the lack of a central back seam and a neat finish despite the use of course materials.

Materials The materials consist of wool broad cloth, superfine wool, worsted woven tape, natural and white linen tread and white metal buttons.

The jacket is unlined and shows no signs of ever having been so..

Colour The colour of the jacket is a typical British Army Red. This is a dull red and is generally of a shade close to brick red. This is in contrast to the bright scarlet worn by the officers or the guards seen today. The shoulder straps and worsted lace are a natural off white colour. A sample of the red fibres was matched to Pantone shade 18/1353TPX

Dimensions The chest size 33'5 inches, Waist 29'5 inches, Sleeve length overall 26'5 inches, sleeve round cuff 11 inches, sleeve around elbow 13 inches, sleeve around upper arm just below arm hole 14 inches.

Ornament The ornament consists of piping and binding to edges and seams, shoulder straps, buttons and a small pocket. .

The piping and binding has been done with white (natural wool) herringbone weave tape. This tape is 0.5 inches wide was commonly used to decorate soldiers' full dress Coatees. It is commonly referred to a *Regimental Lace* . The collar is bound around the top and front and is piped into the seem where it joins the body of the jacket. The fronts and bottom edge of the jacket are bound. The cuffs are piped around the top edge and along the *slash* on the rear seem of the sleeve.

The shoulder straps are faced with fine white cloth and backed with the same red cloth used on the jacket.

The buttons are in white metal and bear the regimental no. 33 within a wreath. All the buttons are 0.75 inches in diameter and have a loop soldered to the back. The jacket has twelve buttons in total with one on each shoulder and ten down the front. The buttons are of the pattern used by the 33rd Regiment at the time of the Napoleonic Wars.

The pocket on the right front of the jacket is intended to hold a percussion cap pouch. It is lined with fine white linen. One inch below pocket opening is a small slash to allow a stud to pass through. This stud would secure the flap of a small leather percussion cap pouch intended to fit snugly on the pocket.

Above the elbow on the right sleeve are two chevrons to donate the rank of caporal and above the right cuff is a single service chevron The chevrons are made of the same *Regimental Lace* as the piping. The rank chevrons extend from seem to seam, point toward the cuff and are stitched directly onto sleeve. The service chevron points towards the elbow and are backed onto cloth of the Regimental facing colour, in this case red.

Techniques of Manufacture The garment has no lining and shows no evidence of ever having been so. The body is made from five panels, consisting of two at the front, a single rear panel and two side panels. There is no centre back seam. The collar is made in two panels , is cut away at the front, with a centre back seam and is lined with the same facing cloth. Each sleeve is made from two panels with seams front and back.

It is stitched entirely by hand. All the long seams are back stitched in natural linen thread. Measurements show that approximately six of these stitches were done per inch. They are very neat and regular.

The side seams of the jacket have been used to achieve a close fit. The front panel has had a strip of fabric one inch wide taken out.

The biding/piping runs around the top and fronts of the collar, down the fronts and bottom of the jacket in one continuous length. This demonstrates that this must have been applied after any alterations to fit had been made. This also suggests that the button stands and buttonhole stands were fitted at the same time as the binding/piping was applied. Therefore I would suggest that this garment was bespoke.

Function This garment was intended as secondary garment to replace the full dress *Coatee* as required. The quality and fit of the garment would suggest that it was not intended as a garment in which one would conduct fatigue work, that is to say it should not be considered a 'Fatigue Jacket' but more as an 'Undress Jacket'.

The evidence of a carefully made *Cap Pouch* is testimony to it being used for musketry and would be worn in conjunction with an ammunition pouch and bayonet belt. These would be secured under the shoulder straps.

Date and Provenance Inside the left front of the jacket are stamped in dark ink the figures ' J D 33 2324'. These figures suggest the soldiers initials, that it was the 33rd Regiment and the soldiers regimental number was 2324. This information is confirmed by information contained in the Regimental Medal Roll. Corporal Joseph Dagley, No. 2324 served with the 33rd (Duke of Wellington's Regiment) of Foot, was wounded at the Battle of the Alma (20th September 1854) and was sent to the Barrack Hospital in Scutari.

Further information may be gleaned from his service record.

Comments Great care and attention has gone into the production of this garment. The lack of any lining may be advantageous to it's fit and appearance. The use of a heavy weight wool cloth, as used in this case, may have difficulties when being hemmed. Typically regimental coats were cut with a raw edge, but in this case the hem has been bound at the edges with tape and turned ender to give the effect of fine piping. This has also strengthened the bottom of the body seams whilst retaining a minimal thickness to the layers of fabric.

Several minor elements contribute to a smarter appearance. The application of the cuff fabric has been done through butting panels together and therefore reducing thicknesses of fabric and giving a neat flat finish.

The use of a heavy/thick woollen cloth has been used to advantage. The thickness of the cloth allows any interior work to be overstitched to the inside of the face cloth without it being perceived from the outside. This is apparent with the button stands and the backing to the cap pouch pocket.

The front right of the jacket showing the cap pouch pocket, rank and service bars.

The rear of the jacket showing the rear seams. Note the body shape particularly evident on the left side of the body.

The outside of the cap pouch pocket together with the white metal regimental buttons.

Detail of the inside of the of the cap pouch pocket. Of note is the method used to pipe and bind the edges with a continuous length of regimental lace. Also the overstitching used to attach the interior fabrics to the facing cloth.

Artefact Record 11 - Set of long steel knitting needles and navy yarn, collection of the Dumfries Museum and Camera Obscura. Accession no. DUMFM:0207.

Date Not known

Dimensions Diameter 3mm

Materials Steel, Wool 2ply fine indigo blue

Function Bonnet /knitting

Comments Information form :-

Catherine Brain

Museums Assistant (Collections Care)

Dumfries Museum & Camera Obscura

The Observatory, Rotchell Road,

Dumfries, DG2 7SW

I have been enquiring about the needles and yarn amongst my colleagues who were here when the display was created. The needles were included as part of the display because descriptions of the production of Kilmarnock bonnets talked of these types of needles. We cannot absolutely say that these particular needles were used in the production of the bonnets, just that they are of the same type or style as would have been used. The yarn is of modern production but has been dyed and spun in a traditional way, using traditional methods.

Whist examining the needles on a visit 10/3/11 the needles illustrated were found to be eight short needles sellotaped together to appear as four long needles.

A further two needles were discovered in the museum stores. They were steel round bar 4mm in diameter and 11 ½ inches in length.

Images DMAC040n

Artefact Record 12- Tartan strip , Regimental Museum of the Argyll and Sutherland Highlanders, Sterling Castle. Acc. No.034b

Date c.1854

Colour Indigo blue, black, green .

Material Wool, hard tartan

Comments See display caption (below) from Regimental Museum.