CURRENT ISSUES IN THE ARCHAEOLOGY OF FRONTIER REGIONS OF THE ROMAN EMPIRE

IRON ARMOUR:

COMPARISON AND CONTRAST BETWEEN THE EAST & THE WEST (1)

- ROMAN & KOREAN ARMOUR-

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A. Definition of Iron Armour

Armour or armor can be defined as protective equipment for defending body against attacks. Armour is also called body armour and the body armour was used by participants in the forms of diverse violence such as fight, conflict, combat, battle, warfare and war. According to Encyclopaedia Britannica, it is explained that armour was often regarded as laborious fashion not only illustrating the personal significance on its defence, but also the social significance for the wearer in the specific group until the modern period.[1]

Iron armour indicates armour which is made of iron. In the early Iron Age, normally the material for armour shows bronze material, but since the late Iron Age, iron armour would have started to replace bronze armour as the metallurgical technology develops. Nevertheless, iron is comparatively easy to rust; therefore, survived iron products are fairly rare in general condition. Usually, iron objects are unearthed in peat bog or specific conditions such as dry weather, cold weather and well preserved alkaline soil.

B. Functions and Purposes

Primarily, the aim of armour is for defending others' attack. The strength and thickness of armour are related with attacking weapons such as spears, swords and arrows. As these weapons develop in metallurgical techniques, those of armour also developed.

Secondly, it is to protect the wearer's body safely. In order to protect body more safely the wearer would have several layers of clothes with chain mails and cottons. In the

[1] Encyclopaedia Britannica Inc. 2014. "Armour"
Available at: http://www.britannica.com/EBchecked/topic/35454/armour (Accessed on 12-12-2014)

Roman Imperial period, legionary and auxiliary soldiers wore military tunic for basic costume inside armour.

Even though military tunic is extremely rare to find in archaeological context due to its material speciality, presumably, tunics neither non-military nor belonged to Roman were found in the Cave of Letters at Nahal Hever. The form of tunics was a mere bag composed of two rectangles combined with a neck opening in the centre and arm holes. Early types of tunics in the Roman Imperial period had an actual unique form and it is interpreted that they may mean more complex than an only upfront bag. (Bishop, M. C. & Coulston, J. C. N. 2006: 110)

C. Archaeological Evidence

In case of Roman iron armour, the real material evidence is rarely found. Other sources are firstly identified from written records and epigraphic evidence such as *De Re Militari* written by author Publius Flavius Vegetius Renatus in the mid-fifth century CE, and reliefs carved on columns or coins. Second sources are achieved from metallographic investigation and analysis of Roman objects. Iron is comparatively easy to decay and degraded. Therefore, it can be unrecognisable and ignored in the field. Third sources are throughout experimental archaeology. It provides a sort of reconstruction based on Roman literary sources. (Sim, D. & Kaminski, J. 2012: 1-4)

Roman iron armour in the Roman Imperial period was discovered mainly in the front regions of the Roman Empire. The famous archaeological sites are at Newstead, Carlisle, and Corbridge in Britain. In addition to this, a complete set of suit of Roman armour was uncovered at Caerleon dig most recently in Wales.[2] It is known as the discovery after 40 years since the armour unearthed at Carlisle.

By contrast to this, in case of Korean iron armour, the real material of iron products achieved by academic archaeological investigations was extremely rare until the 1970s. The written records were either from Chinese or from Korea later in the 11th century CE and they did not provide any detailed descriptions on armour. Only some specific terminologies such as *gap* 甲 and *gae* 鎧 indicating several morphologies of armour offered some clues to Korean archaeologists.

[2] BBC News Wales 13 September 2010 Available at: http://www.bbc.co.uk/news/uk-wales-11288684 (Accessed on 13-12-2014)

Moreover, the soil of South Korea is usually red and sour; in addition, it made iron objects decay easily and disappear without any trace. Such reasons led Korean archaeologists into the lack of real material evidence. Nevertheless, comparatively affluent mural painting tombs in the northern part of the Korean Peninsula and Manchuria contributed inferable visual images for armour to Korean scholars in the 1960s and 1970s.

Auspiciously, iron products including iron armour started to be revealed in the southern part of South Korea from the beginning of the 1980s. The research on armour was usually concentrated on the southern part of South Korea. In 1990s, archaeology began to be rapidly industrialised and a massive number of building infrastructure required archaeological investigations prior to architecture in South Korea.

Such demands allowed establishing professional excavation firms in the form of non-profit foundations in South Korea between the late 1990s and the 2000s. Furthermore, a number of new discoveries have reported in the sub-urban areas of Seoul in Gyeonggi Province and the rest part of South Korea since 2000. (Barnes, G. L. 2001: 125-150)

Goguryeo armour has shown in the mural tombs in North Korea, and Manchuria (at present, Northeast China). One of famous mural paintings can be found at Anak Tomb No.3 in Hwanghae Province, North Korea. It illustrates a march of troops and armour for soldiers on the wall. [Figure.1] The other well-known example is the Three-chambered Tomb at Donggou. Drawings from the Three-chambered Tomb demonstrates an armoured warrior is about to cut off the other opponent. [Figure.2] The other painting at the same tomb shows two ironclad horse riders are attacking fortress. [Figure.3] There is also a painting shows a heavy cavalier holding a spear at Two Columns Tomb in Jian, Jilin Province of Northeast China. [Figure.4] Besides, a suit of lamellar armour was uncovered at Yeoncheon Mudeung-ri Fort No. 2, Gyeonggi Province in South Korea as well. [Figure.5] (Seoul National University Museum 2011: 102-103)

Baekje armour displays normally in Seoul and the south-western part of the Korean Peninsula. Firstly, the bone lamellar armour was uncovered at Mongchontoseong in Seoul by the excavation of the Seoul National University Museum in 1985. (Seoul Metropolitan City & Seoul National University Museum 1988) [Figure.6] Moreover, recently since the 2000s, new discoveries have shown in Baekje territory. In 2006, plate laminar armour unearthed at Gildu-ri Andong Tomb in Goheung, Jeolla South Province of South Korea. (National Research Institute of Cultural Heritage 2007) [Figure.7] In addition, a village inside at Gongsanseong Fortress in Gongju City, Chungcheong South Province revealed iron lamellar armour and lacquered leather lamellar armour in 2011. [Figure.8] Other type

of lamellar armour was found at Osan Sucheong-dong between 2005 and 2008. [Figure.9] (Gyeonggi Institute of Cultural Property [Gyeonggi Cultural Foundation] 2012)

Gaya armour illustrates plate laminar armour from southern part of South Korea. The famous archaeological sites are at Gimhae Yangdong-ri, Gimhae Toerae-ri, Goryeong Jisan-dong [Figure.10], Busan Bokcheon-dong, Haman and Hapcheon. (Gimhae National Museum 2008) Furthermore, there is a horse rider pottery known as the object from Gimhae Deoksan-ri. It shows a fully-armed horse rider mounting on a horse who is wearing horse armour. It is carrying a shield on the left hand and a spear on the right hand. [Figure.11] The other types of lamellar armour are also identified at Goseong Songhak-dong, Hapcheon Okjeon-ri, Haman Dohang-ri, Geoje Jangmok Tomb, Goryeong Jisan-dong.[3]

Silla armour demonstrates at Deokcheon-ri, Hwang-o-dong Jjoksaem Jigu and Gujeong-dong in Gyeongju. At Gyeongju Deokcheon-ri site, a heavy cavalier pottery was uncovered in the log-chambered tomb covered with stone in 2002. (Central Institute of Cultural Heritage 2005) [Figure.12] The real material of a Silla lamellar armour complete set was unearthed at Hwang-o-dong Jjoksaem Jigu in 2009. (Gyeongju National Institute of Cultural Heritage 2013) [Figure.13] Besides, plate laminar armour was revealed at Gyeongju Gujeong-dong. [Figure.14]

D. Typologies of Roman & Korean Armour: Lamellar, Scale, Laminar Armour and other types

(a) Roman Body Armour: *Lorica*

The Roman Imperial Era: the First Century BCE - the Fifth Century CE

(1) Lorica Musculata: Muscle Cuirass [Figure.15]

Muscle cuirass armour is regarded as the early proto type armour in the Roman Empire. The oldest form is well-known as Dendra armour. It is composed of two large casted plates fit for the wearer's body shape. This type of body armour was mainly in the Roman Republican period and the Imperial period. However, it was altered more decorated type in the Imperial period than the earlier period. (Travis H. and J. 2012: 90-94)

(2) Lorica Hamata: Chain Mail [Figure.16]

[3] Mugap's Korean Armour/Weapon-Making Historical Korean Armours
Available at: http://kyb0417.blogspot.kr/search/label/lamellar%20armor (Accessed on: 13-12-2014)

Chain mail or *lorica hamata* is one of body armour and had interconnecting metal chains. Its origin is known as Celts and Romans employed it. This type of armour was broadly used for cavalry and infantry. Furthermore, it was also utilised from the Roman Republican to the end of Roman Imperial periods. Its functions are similar to that of *lorica squamata* but chain mail is known more elastic than *squamata*. Nevertheless, it has two weak points. One is that it can sometimes be hung down due to its weight, and the other is tight mail can give rise to body heat for prolonged periods. (Sim, D & Kaminski, J. 2012: 111)

(3) Lorica Plumata: Plumose Lamellar Armour [Figure.17]

Lorica plumata is a kind of lamellar armour. It is fairly similar to *squamata* that shows like fish skin but *plumata* resembles bird feather. It is regarded to be adopted from the Parthians in the Near East. This armour was limitedly used for generals only. It was used for cavalier protection and covered the whole body of mounted rider as well as the horse. This type of armour was mainly identified on the Trajan columns.[4]

(4) Lorica Squamata: Scale Armour [Figure.18]

Scale armour or *lorica squamata* was composed of four primary types of metal body armour among the Roman soldiers with *lorica segmentata*, *lorica hamata* and *lorica musculata*. It is known to be used since at least the seventeenth century BCE. This scale armour was fairly effective to defending outside attack, because scale in the *lorica squamata* firstly absorbed the influence and made it less damaged to the wearer. (Sim, D. & Kaminski, J. 2012: 95-96) It was formed of semi-circular layers putting above each other. Its length reached from chest to hips and it had smaller bands for shoulder-guards.[5]

(5) Lorica Segmentata: Laminar Armour [Figure.19]

Laminar armour or lorica segmentata dates back to approximately 9 BCE in its earliest form. The earlier model of this armour shows an intricate structure for joining and buckling. Its recovered examples are identified at Danggestetten in Germany and

[4] Society of Antiquaries of London. 1821. *Archaeologia: Or Miscellaneous Tracts Relating Antiquity* Volume XIX. 341-342. London: Society of Antiquaries of London. Google Books (e-book) Available at: http://books.google.nl/books?hl=ko&id=bmEVAAAAQAAJ&q=lorica+plumata#v=snippet&q=lorica%20plumata&f=false (Accessed on: 13-12-2014)

[5] Society of Antiquaries of London. 1821. *Archaeologia: Or Miscellaneous Tracts Relating Antiquity* Volume XIX. 342. London: Society of Antiquaries of London. Google Books (e-book) Available at: http://books.google.nl/books?hl=ko&id=bmEVAAAAQAAJ&q=lorica+plumata#v=snippet&q=lorica%20plumata&f=false (Accessed on: 13-12-2014)

Vindonissa in Switzerland. By the end of the first century CE, the earlier forms of *lorica segmentata* were starting to be substituted by Corbridge, Carnuntum and Newtead types. The types of *lorica segmentata* provided a lot of pros to its wearer. It was comparatively bendable and gave high advantages to protect the wearer's body. (Sim, D & Kaminski, J 2012: 135)

(b) Korean Body Armour

Proto-Three Kingdoms Period & Three Kingdoms Period: the First Century BCE –the Seventh Century CE [Figure.20]

(1) Goguryeo

The archaeological evidence of Goguryeo armour is mainly concentrated on North Korea and Manchuria. The special feature of Goguryeo armour is it illustrates only lamellar armour for cavalry and infantry until now. It is a sort of distinction only found in Goguryeo distinguished from other three polities in the Korean Peninsula in the Three Kingdoms period.

(2) Baekje

The objects of Baekje are normally identified in the middle and the south-western part of the Korean Peninsula. The special feature of Baekje armour is to show diverse materials. It has lamellar armour made of iron, bone, and lacquered leather; in addition, it also illustrates banded plate laminar armour made of iron. (Cultural Heritage Conservation Science Center [National Research Institute of Cultural Heritage] 2011: 60-68)

(3) Gaya

Gaya iron armour is shown in the southern part of the Korean Peninsula. Famous lamellar armour is the horse rider figurine known from Gimhae Deoksan-ri. Gaya iron plate laminar armour shows a variety of types such as vertical, banded, and triangular plate. The special feature of Gaya iron armour is plate laminar armour was mainly used until the fourth century CE and the number of lamellar armour increased from the mid fifth century CE.[6]

[6] Cultural Heritage Administration (uploaded on 18-04-2013). Cheolgaboseuro Ilgeoboneun Gaya Iyagi. In: *Wolgan Munhwajae Sarang* (Gaya Story Reading through Iron Armour. In: *Monthly Cultural Heritage Love*)
Available at:
http://www.cha.go.kr/cop/bbs/selectBoardArticle.do?nttId=14115&bbsId=BBSMSTR_1008&page

(4) Silla

Silla armour is identified in the south-eastern part of the Korean Peninsula. One type of iron lamellar armour demonstrates through the horse rider figurine from Gyeongju Deokcheon-ri. Moreover, the other type is seen at Gyeongju Hwang-o-dong Jjoksaem Jigu Point C burial No.10 around the fifth century CE. The special feature of Silla iron laminar armour is that it is composed of vertical plate.

E. Productive Techniques

Roman iron production is divided into several steps. The iron production starts collecting ore on the surface, but when the surface deposits become exhausted, the Roman Empire needed to find places for open-cast quarrying and underground mining. (Sim, D. & Kaminski, J. 2012: 8-10)

Korean iron production is not much deeply researched yet until now. Nevertheless, iron materials have quite often discovered and reported since 2000s. Even though iron workshop features and sites are not confirmed yet, they would have been identified some day in the near future. Confirmed iron processing sites are at Jincheon Seokjang-ri and Chungju Chilgeomdong in Chungcheong North Province, normally regarded as the Baekje territory. Recently, the Gaya iron processing site was reported at Changwon Bongrim-dong in Gyeongsang South Province in 2009.

F. Concluding Remarks

Roman Imperial armour was standardised and have mass-produced systems by central management. In spite of the fact that the Roman mass-produced system was not manufacturing mass-production, it was a sort of clustering of small workshops in some specific areas. The Roman central authority can have controlled the production and supply of iron armour for soldiers.

By contrast, Korean armour is shown that it would have produced in each different part of the Korean Peninsula and had localised productive systems divided by polities. Goguryeo armour is normally described in mural tombs in the northern part of Korean Peninsula and Manchuria. Moreover, the lamellar armour was revealed in Mudeung-ri Fort No.2 in archaeological context. Baekje armour was found in the middle and the south-western part of South Korea. Baekje used bone and lacquered lamellar armour as

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well as iron lamellar and banded plate laminar ones. Gaya utilised iron lamellar armour and diverse types of laminar armour such as vertical, banded, and triangular plates. Silla armour is discovered principally in the Gyeongju sphere and it is normally dated to the fifth century CE.

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Illustrations

[Figure.1] March of troops, Anak Tomb No.3 in Hwanghae Province, North Korea

http://pds23.egloos.com/pds/201204/23/34/a0053134_4f946416eaea9.jpg

[Figure.2] an armoured warrior is about to cut off the other opponent, Three Chambered Tomb at Donggou in Jian, Jilin Province, Northeast China

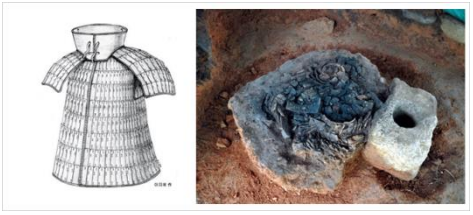
http://pds.joins.com/news/component/htmlphoto_mmdata/200906/htm_20090603023931a000a010-002.JPG

[Figure.3] The scene that two ironclad horse riders are attacking fortress, Three Chambered Tomb at Donggou in Jian, Jilin Province, Northeast China

http://www.chosun.com/media/photo/news/200409/200409230248_01.jpg

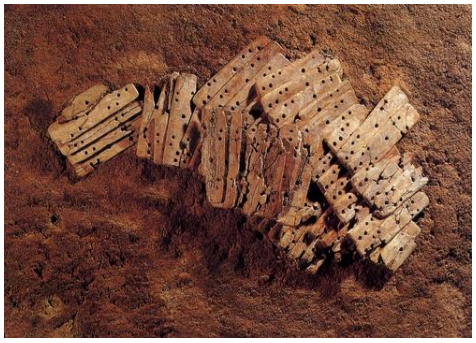
[Figure.4] A heavy cavalier holding a spear at Two Columns Tomb in Jian, Jilin Province of Northeast China

http://pds18.egloos.com/pds/201007/01/57/f0006957_4c2b5d5111370.gif



[Figure.5] A suit of lamellar armour uncovered at Yeoncheon Mudeung-ri Fort No. 2, Gyeonggi Province in South Korea

http://www.nrich.go.kr/kr/Journal/2011_kor/img/102-1.png



[Figure.6] The Baekje bone lamellar armour uncovered at Mongchontoseong in Seoul

http://pds7.egloos.com/pds/200710/09/07/c0036507_470b95d51e6d1.jpg

[Figure.7] The Baekje plate laminar armour unearthed at Gildu-ri Andong Tomb in Goheung,

Jeolla South Province of South Korea

http://pds7.egloos.com/pds/200711/23/03/e0061503_4746627940173.jpg

[Figure.8] The Baekje iron lamellar armour and lacquered leather lamellar armour revealed at a village inside at Gongsanseong Fortress in Gongju City, Chungcheong South Province, South Korea

http://m.blog.daum.net/kinhj4801/15960517

[Figure.9] The Baekje lamellar armour found at Osan Sucheong-dong

http://kyb0417.egloos.com/5120677

[Figure.10] Goryeong Jisan-dong Tomb No.32 Gaya plate laminar armour

http://211.252.141.1/program/board/detail.jsp?boardTypeID=114&searchSelect=&keyWord=&boardCategory=&currentPage=1&menuID=001005001&finishIsYN=&boardText1=&boardLines=10&boardID=18600&mode=detail&boardnum=24&totalcount=24&boardCategorySelect3=1

[Figure.11] A horse rider pottery known as the object from Gimhae Deoksan-ri

http://blog.joins.com/usr/e/sk/eskang/1203/4f62e4398abaf.jpg (Left)

http://cfile217.uf.daum.net/image/03133E395088D8C31C95CC (Right)

[Figure.12] A heavy cavalier pottery at Gyeongju Deokcheon-ri site

Gyeongju National Museum, Photo by: H.W. Kim (11-04-2010)

[Figure.13] A Silla lamellar armour complete set unearthed at Gyeongju

Hwang-o-dong Jjoksaem Jigu

http://image.munhwa.com/gen_news/200906/2009060201070230074002_b.jpg

[Figure.14] plate laminar armour revealed at Gyeongju Gujeong-dong

http://yokeru.egloos.com/m/823859

[Figure.15] *Lorica Musculata*: Muscle Cuirass

http://fabricaromanorum.shawwebspace.ca/asset/view/37809/e_final_035.jpg/

[Figure.16] *Lorica Hamata*: Chain Mail

Rijksmuseum van Oudheden Leiden photo by H.W. Kim (28-11-2014)

[Figure.17] *Lorica Plumata*: Plumose Lamellar Armour

http://valhallaforge.ru/wp-content/uploads/2012/06/loricaplumata10iihbh13984.jpg

[Figure.18] *Lorica Squamata*: Scale Armour

http://upload.wikimedia.org/wikipedia/commons/1/18/Cricau_Festival_2013_-_Lorica_squamata_-_6.jpg

[Figure.19] *Lorica Segmentata*: Laminar Armour

http://valhallaforge.ru/wp-content/uploads/2012/05/HR-1019.jpg

[Figure.20] Proto-Three Kingdoms Period & Three Kingdoms Period

: The first Century BCE –The seventh Century CE

The fourth century CE map

http://upload.wikimedia.org/wikipedia/commons/c/cd/History_of_Korea-375.png