

# A NEW WORLD FIND OF EUROPEAN SCALE ARMOR

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## RESUMEN - ABSTRACT

Estudio crítico, desde un punto de vista histórico y arqueológico, de un grupo de placas de armadura hallados en Nuevo Méjico (USA). La rareza del hallazgo es manifiesta para la historia de las expediciones españolas en Nuevo Méjico y para la evolución de las armaduras de placas en Europa.

A group of armor scales found in New Mexico (USA) is critically examined from an archeological and historical point of view. The rarity of the find and its importance are demonstrated, both for the history of Spanish exploration in New Mexico and for the development of scale armor in Europe.

## PALABRAS CLAVE - KEY WORDS

Placas. Armadura de placas. Brigandina / coracina. Cota de placas. Nuevo Méjico.  
Scales. Scale armor. Brigandine. Coat of plates. New Mexico.

## PART I: THE HISTORY OF THE FIND, BY HUGH C. ROGERS

In the late 1920's a sheepherder named T.O. Kirk found some rusted metal plates near Aztec, New Mexico, and brought them into the town. T.A. Pierce, a banker in Aztec who was shown the plates, realized that they represented what he called «Spanish armor scales» and visited the site with Kirk. Together they collected what was later described as «half a lard pail» or «a hat full» of the objects. Pierce also made some notes and a sketch map of the location. As the artifacts were considered mere curiosities, no further investigation was done and the matter was soon forgotten<sup>1</sup>.

When the bank was moved in the mid-1960's, the notes left by Pierce, who was by then deceased, were discovered by Robert Ziegler and, utilizing his map, the site was relocated. Many relic collectors and treasure hunters subsequently scoured the area until nothing more could be found. As this was before the passage of the Archeological Resources Protection Act in 1979, the plates were kept in private collections, some being distributed as gifts to interested friends and relatives both locally and around the country. In 1995, one of these collections was donated to the San Juan County Museum Association, Bloomfield, New Mexico

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<sup>1</sup> The number of scales collected by Kirk was 120. They were recorded in the possession of his daughter in Durango, Colorado, in the late 1930's. Unfortunately, their present whereabouts is unknown. See Temple H. Cornelius, «Sherds and Points: The Archeological Story of Durango, Colorado, By Local Amateurs», vol. II, article XXI. *The Durango Herald Democrat*, June 2, 1941.

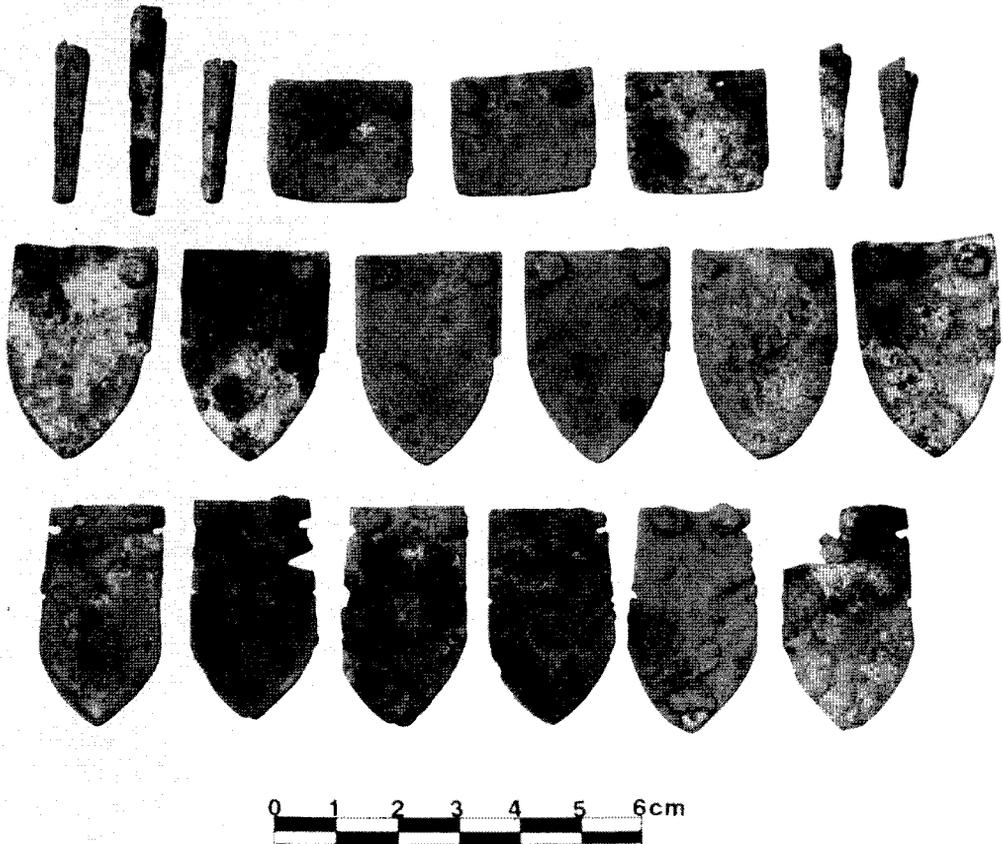


Fig. 1. Representative group of artifacts from the New Mexico find. San Juan Museum Association, Bloomfield, New Mexico.

(fig. 1). A second group has recently been donated to the Arms and Armor Department of the Metropolitan Museum of Art, New York (figs. 2A and 2B). In the course of investigation published and unpublished manuscripts and articles have been reviewed, persons involved in the find have been interviewed, and several private collections have been examined<sup>2</sup>. The site has been surveyed by professional archeologists from the Bureau of Land Management, as it is on federal land, and a site file has been established at the New Mexico Laboratory of Anthropology (LA 114, 349).

As far as can be determined all of the armor-related remains were discovered in a small area of less than 0.2 hectare. The site itself has no unusual topographic features to distinguish it from the surrounding hundreds of square kilometers of sage brush flats interspersed by

<sup>2</sup> Sources for this history include the newspaper article by Cornelius cited above as well as: Olive Frazier Cornelius, «Pioneer History and Reminiscences of the San Juan Basin», Unpublished manuscript (written 1932) on file, Farmington Public Library, Farmington, New Mexico; Gregory K. Hawk, «Mystery of the Spanish Relics.» *Relics*. August, 1969, pp. 20-26; Joe Boetcher, «The Mystery of the Spanish Armor», *Empire Magazine; The Denver Post*, Denver, April 13, 1980.

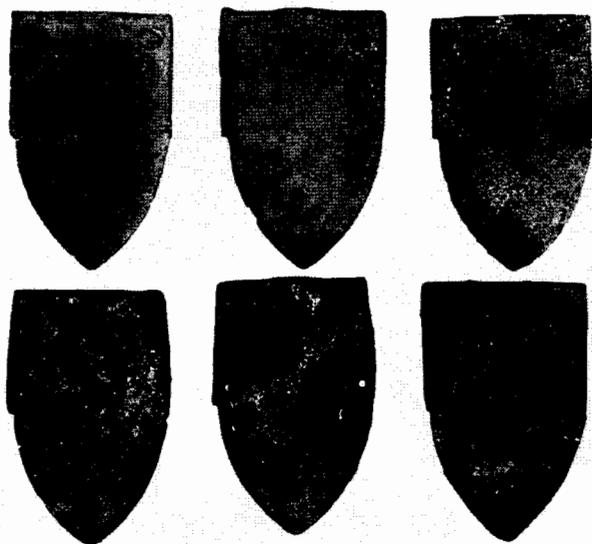


Fig. 2A

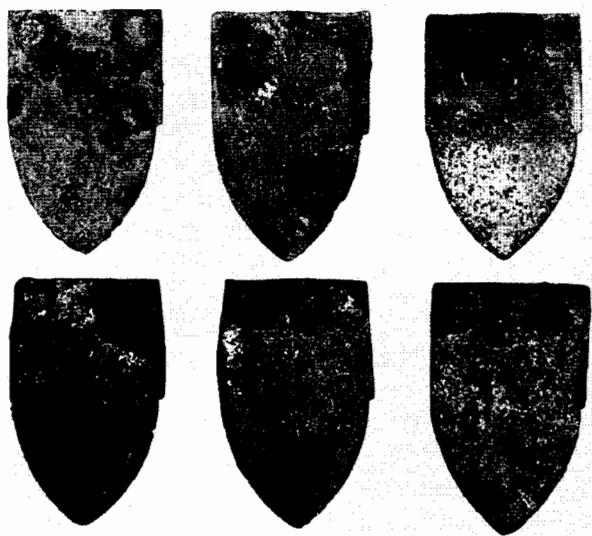


Fig. 2B

Fig. 2a-2b. Six scales from the New Mexico find. The Metropolitan Museum of Art, Gift of Mr. and Mrs. Raymond E. Willerford, 1998 (1998.366.1-6): (A) outside, and (B) inside.

growths of piñon pines and juniper trees and low sandstone ridges. The area is archeologically rich, having been inhabited for over 3000 years, but no other evidence of Colonial Spanish presence is known. The region was the home of Navajo and Ute Indians until the coming of Anglo-American settlers in the late 19th century.

New Mexico was first entered by Don Francisco Vazquez de Coronado in 1540, followed by several other exploring parties in the 16th century. Colonization began in 1598 under the leadership of Don Juan de Oñate and outposts were established on the Rio Grande and at Native American pueblos<sup>3</sup>. None of these explorations or settlements, however, was closer than 175 kilometers to the area at which the armor scales have been found.

Many of the Oñate colonists are known to have been outfitted with armor, but the surviving quartermasters' inventories describe most of the body armor simply as *cotas de malla*, or coats of mail<sup>4</sup>. The local activities of these Europeans during the 17th century are poorly known, records having been destroyed during the Pueblo Revolt of 1680, but it is known that there was no documented Spanish presence in northwestern New Mexico, where the plates were found until the mid-18th century. Where these artifacts originated, how they came to the New World, who wore them in New Mexico, and how they came to be where the remains were found cannot now be established. The present study is, therefore, limited to the artifacts themselves, an initial report on which has been published in the archeological literature<sup>5</sup>.

To date, a total of 127 shield-shaped plates, 3 rectangular plates, 33 cones, and 16 small iron balls from several collections have been examined. An additional 198 shield-shaped plates have been identified, but have not been inspected, either because permission has been denied or because their present location is uncertain. How many have been lost due to undocumented distribution is unknown but the total number found is probably somewhere around 500. Records of the artifacts studied are presently on file with the San Juan County Museum Association, Salmon Ruin, Bloomfield, New Mexico along with the representative specimens mentioned above and shown in figure 1.

Shield-shaped plates make up by far the majority of the collections. They are quite regular in their size, shape, and rivet placement. Examination suggests that they were cut from a sheet of metal according to a pattern, with only minimal individual shaping by hand required. Well preserved specimens measure 25 mm wide, 40 mm in length, and have a thickness of 1 to 1.2 mm; each weighs approximately 5 grams. They are slightly convex along the long axis, bowing out on the side opposite that from which the rivets protrude. Each has two plain, flat-headed rivets, one on each upper corner. Traces of leather have been found beneath some of the rivet heads. Each plate has a crimped border along the top or horizontal edge and the upper half of each side edge, probably to add strength and make the edges less likely to bend. Fifteen of the plates examined have small (less than 1mm) holes punched along the borders; 3 have one such hole, 6 have two, and 6 have four. Two of the plates examined were modified by cutting off a portion of the curved lower edge on one side. There are also a few narrow variants of the shield-shaped plate, as shown in figure 1, lower row. These narrower scales are 20 mm wide and are otherwise identical to the scales described above. They appear to have been originally manufactured in this size, rather than having been cut down from the larger scales. Eight of these plates have been studied and four show two holes, one on each edge adjacent to the rivet.

<sup>3</sup> George P. Hammond and Agapito Rey, «Don Juan de Oñate, Colonizer of New Mexico, 1595-1628». Part I, *Coronado Historical Series*, vol. V. University of New Mexico Press, 1953, passim.

<sup>4</sup> *Ibid.*, pp. 94 - 168, 199 - 308.

<sup>5</sup> Hugh C. Rogers, «Brigandine Armor From San Juan County, New Mexico: A Preliminary Report», *Diné Bík'éyah: Papers in Honor of David M. Brugge. The Archaeological Society of New Mexico*, vol. 24, 1998, pp. 179-185, Mehila S. Duran and David T. Kirkpatrick, eds.

Only three rectangular plates are known and these appear similar to the shield-shaped plates with the curved lower portion removed. They measure 26 mm wide by 22 mm long and rivet placement is identical to the others, with one at each top corner. None show evidence of bowing and all have the crimped edges. They appear to be standard shield-shaped plates with the curved portion cut away. All of these specimens have holes along the borders: one has a single hole of this kind, another has two, and the third has four holes.

Most of the cone-shaped artifacts are poorly preserved and vary in length and weight. These were formed by rolling a triangular piece of metal to shape and could have been made from scrap produced when the shield-shaped scales were cut. None show further modification. The round iron balls were discovered by a meticulous excavator in association with a group of cones and appear to be of a similar metal. They measure 3 mm in diameter and are not perforated.

Archeometallurgical testing of several specimens has been done by Dr. David Killick of the University of Arizona, Tucson. Examination of two well preserved shield-shaped plates and a cone reveals that they were made from similar iron of rather indifferent quality with much entrapped slag. Inclusions are iron oxides and iron rich glasses and indicate a bloomery process; the absence of sulfur rules out smelting with coke. A high phosphorus content suggests the use of a sedimentary iron ore, probably bog iron, which was widely used as an ore source in Europe. A surface coating of tin is present on both scales and the cone, probably applied by dipping the individual pieces.

## PART II. THE SCALES IN THE CONTEXT OF EUROPEAN ARMOR, BY DONALD J. LARocca

The scattered fragments of the scale armor found in New Mexico are unprecedented in the context of the types of European body armor known to have been used in the New World<sup>6</sup>. The finds are doubly interesting because they also represent a form of armor that is believed to have gone out of use in Europe long before the age of colonization. The European explorers who came to the Americas in the 16th and 17th centuries were armed and equipped in much the same way as they would have been for military operations in their homelands. This is especially true of the first half of the 16th century. During the latter half of the century the steady increase in the use of firearms on the battlefields of western Europe was matched by a gradual decrease in the amount of body armor worn. In the Americas, however, the efficacy of body armor against native weapons was unquestioned until sufficient numbers of firearms were obtained by indigenous peoples in the mid to late 17th century. The types of body armor worn by Europeans in the New World fall into three broad categories: plate armor, mail, and a mixture of plate and textile in the form of brigandines and jacks. These categories are by no means exclusive of one another. The typical equipment of a fighting man could, and often did, include a combination of any of the three. The frequent use of these types of armor in the Americas is amply borne out by period documentation and by excavated archaeological finds<sup>7</sup>.

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<sup>6</sup> The best general survey of this subject remains Harold L. Peterson, *Arms and Armor in Colonial America, 1526-1783*, New York, 1956. A more focused treatment of the situation as it pertains to New England is found in Walter J. Karcheski, Jr., «Arms, Armor, and Equipment of the 'Trained Bands' of Early 17th Century New England», *17th Century War, Weaponry and Politics: Report of the International Association of Museums of Arms and Military History, X<sup>th</sup> Congress, Stockholm, Sweden, September 2-11, 1984*, pp. 267-282.

<sup>7</sup> In addition to Peterson, *op. cit.* and Karcheski, *op. cit.* on this point see the references cited by Rogers, *op. cit.*, pp. 182-183.

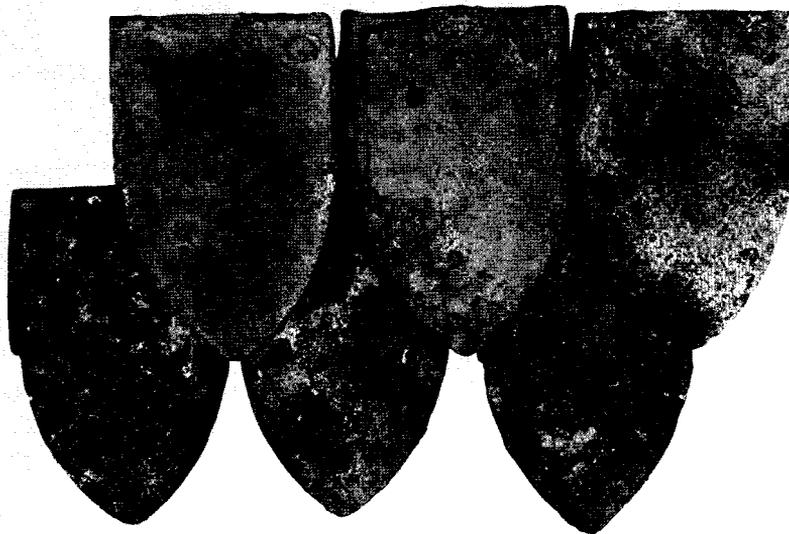


Fig. 3. The scales in figure 2 arranged in the pattern in which they would have been mounted on the missing foundation fabric.

The placement of the rivet heads on the concave side of the New Mexico scales clearly indicates that the scales were made to be attached to the outside of a leather or textile base (figs. 2A and 2B). Arranging the scales in the proper overlapping, or imbricated, pattern (fig. 3) suggests the type of garment they must have composed originally; a coat of scales akin to the Roman *lorica squamata*<sup>8</sup>. Riveted to a textile or leather base material in an imbricated pattern the scales would have encircled the wearer's torso in a series of overlapping horizontal rows. Positing an average of forty scales for each row a defense of this type, reaching from the throat to the upper thighs, could easily have required as many as 500 scales to construct<sup>9</sup>. The traces of tinning found by Dr. Killick on the scales acted as a rust inhibitor, a method applied to armor scales as early as the imperial Roman period<sup>10</sup>.

Many scales and fragments of scale armor survive, ranging from middle eastern examples dated as early as ca.1700 BC to finds from imperial Roman sites in Europe dated as late as the 3rd or 4th century AD<sup>11</sup>. The visual evidence for medieval scale armor, however, exists only in the form of artistic representations such as sculpture and manuscript illuminations<sup>12</sup>. These sources indicate that scale armor was worn fairly frequently through the early

<sup>8</sup> The *lorica squamata* is discussed in detail in H. Russell Robinson, *The Armour of Imperial Rome*, New York, 1975, pp.153-161.

<sup>9</sup> For European finds of Roman scales in comparable numbers see Robinson (1975), p. 154.

<sup>10</sup> For the use of tinning on Roman scale armor see Robinson (1975), p. 156. The plates in 15th and 16th century European brigandines are typically tinned.

<sup>11</sup> For example, a group of scales in the Metropolitan Museum of Art, dated to ca. 1700 BC, was excavated in Thebes at the site of the palace of Amenhotep III. They are illustrated in Yigael Yadin, *The Art of Warfare in Biblical Lands*, New York, 1963, vol. I, p.197, along with other examples of scale armor from this period.

<sup>12</sup> For medieval scale armor see the monumental study by Bengt Thordeman, *Armour from the Battle of Wisby, 1361*, 2 vols., Stockholm, 1939, esp vol. I, pp. 276-284. For an extensive visual survey including many examples of scale armor as represented in medieval art see David Nicolle, *Arms and Armour of the Crusading Era, 1050-1350*, 2 vols., New York, 1988, passim.

middle ages, more sporadically by the 11th to 12th centuries, and appears to have disappeared entirely from western Europe as a primary means of defense by the mid-14th century. It continued to be relatively common into the 15th century in central Europe and Byzantium. Thordeman has pointed out that as the coat of plates came into use, spreading rapidly in the course of the 13th century, the use of scale armor in western Europe waned correspondingly<sup>13</sup>. Thus the New Mexico scales present a paradox: that there should be found in a region not visited by Europeans before ca. 1600 the remains of a coat of scales, a type of body armor not known to have existed for two to three hundred years. They also present what may be the only physical evidence for the construction of this type of armor as it may have existed in late medieval Europe.

The New Mexico scales were clearly designed to be attached to a base material by riveting. This is unlike any of the extant earlier scales from the Middle East, Central Asia, and various Roman sites across Europe, which are pierced with varying numbers of holes and were made to be stitched onto a base material with leather or textile laces. They can also be secured by small loops of metal, which sometimes augmented or replaced the lacing<sup>14</sup>. The many artistic depictions of medieval European scale armor do not, unfortunately, make it possible to know how the scales of the armor of that period may have been attached. Through both works of art and extant armors, on the other hand, it is well known that by the mid-13th century the plates of a coat of plates were riveted to the inside of a textile garment, as were the plates of brigandines in the 15th and 16th centuries<sup>15</sup>. For the sake of clarity the principal differences between scale armor and the coat of plates or brigandine types should be restated. In scale armor the plates are, first of all, scale-shaped. They are attached to the outside of a base material or garment and are arranged in an imbricated pattern (i.e. overlapping like roof shingles or fish scales). In the coat of plates and brigandine types the plates are generally rectangular or square in shape. They are riveted to the inside of a base material or garment, and overlap in vertical or horizontal rows. The New Mexico scales, therefore, seem to be a hybrid of the riveted construction of the coat of plates/brigandine type and the traditional form and pattern of scale armor. Whether this was also the case with some or all medieval scale armor is not known, but there was probably a transitional period, in some regions at least, which saw the use of both techniques.

The mid-14th century is the last period in which sculptural depictions of scale armor, serving as what appears to be the principal defense for the torso, rather than as a subsidiary defense for the hips or feet, can be found with any frequency in a western European context<sup>16</sup>. A listing of some of the most detailed representations includes: two equestrian reliefs of ca. 1320-25 formerly in the Bargello, Florence, on which the riders wear a scale gauntlet on the right hand and scale torso armor<sup>17</sup>; a relief sculpture on a capital in the cloister of Barcelona Cathedral that includes two figures in full coats of scale<sup>18</sup>; a figure carved in high

<sup>13</sup> Thordeman, *op. cit.*, p.288.

<sup>14</sup> On this point see Thordeman, *ibid.*, p. 281, and Robinson, *op.cit.*, p. 154.

<sup>15</sup> For a detailed discussion of the history, use, and construction of brigandines see I.D.D. Eaves, «On the Remains of a Jack of Plate Excavated from Beeston Castle in Cheshire», *The Journal of the Arms and Armor Society*, vol. XIII, no. 2 (Sept. 1989), pp. 81-154.

<sup>16</sup> This does not, of course, pertain to depictions of scale armor used as an artistic convention to evoke an antique period or an exotic setting.

<sup>17</sup> For one relief see Lionello G. Boccia and Eduardo T. Coelho, «Colaccio Beccadelli: An Emilian Knight of about 1340», *Arms and Armor Annual*, Chicago, 1973, fig. 19., p. 21. For the other see a sketch by Eduardo T. Coelho in *idem*, «L'armamento di cuoio e ferro nel Trecento italiano», *L'Illustrazione Italiana*. Anno I, n. 2, 1974, fig. 2, p. 28. The latter was also published in a reconstructed version in color by Eduardo Coelho as the cover of L.G. Boccia, et. al., *Guerre e Assoldati in Toscana, 1260-1364*, Florence, 1982.

<sup>18</sup> Martí de Riquer, *L'Arnès del Cavaller. Armes i Armadures Catalanes Medievales*, Barcelona, 1968, fig. 246. Note that the date of the carvings is given as 15th century.

relief with large relatively square scales in the cloister of Pamplona Cathedral<sup>19</sup>; a recumbent tomb figure from ca. 1330-40 in the Church of St. Lawrence, in Warkworth, Northumberland, with large scales visible beneath the skirts of its surcoat<sup>20</sup>; an effigy of ca. 1325-50 in St. Peter's Church, Sandwich, on which two rows of small scales are depicted as worn above a coat of mail and a quilted gambeson and beneath a surcoat<sup>21</sup>; another of the same period in the Church of St. Michael and All Saints, Moccas, Herefordshire, with large scales beneath its surcoat (fig. 4)<sup>22</sup>; the effigy of Albrecht von Hohenlohe-Möckmühl (ob. 1338) in Schönthal an der Jagst, Würtemberg, on which a coat of small scales is shown in detail at the right shoulder and chest, visible through the arm opening of the surcoat<sup>23</sup>.

It should also be pointed out that a coat of scales from the Museo Arqueológico de Alava (Vitoria, Spain), has been published as a European example from the 12th to the 14th century<sup>24</sup>. It is more probable, however, that this is a Chinese scale armor of the type known as *kiai*, dating from the 18th or 19th century, comparative examples of which can be found in museums in Madrid, Mexico City, Chicago, and New York<sup>25</sup>.

Print sources offer some evidence of a limited but continued use of scale armor in the early 16th century, especially of scale skull caps worn by infantry<sup>26</sup>. The 17th century Polish *karacena* is the most well known type of extant scale armor. A scale skirt also occurs occasionally as a rump defense (culet) on Italian cuirassier armors of the early 17th century<sup>27</sup>. Both the *karacena* and the scale culet, however, are examples of revival styles and bear no relation to the New Mexico scale armor.

Having put the New Mexico scales in the general context of the development and use of scale armor in Europe the question remains as to how this seemingly unique material came to

<sup>19</sup> *Ibid.*, fig. 43. The circular stomach plate on this highly interesting and distinctive coat of scales suggests an Islamic or Asian influence.

<sup>20</sup> Cited by Claude Blair in *European Armour*, London, 1957 (repr. 1972), p. 62. See also C.H. Hunter Blair, «Medieval Effigies in Northumberland», *Archaeologia Aeliana, or Miscellaneous Tracts Relating to Antiquity*, 4th series, vol. 7, Society of Antiquaries of Newcastle upon Tyne, 1930, p. 3 and catalogue no. VIII, pp. 12-13, pls. V and VI.

<sup>21</sup> Claude Blair, *op. cit.*; illustrated in John Hewitt, «Knightly Effigies at Sandwich and Ash», *The Archaeological Journal*, vol. VIII, 1851, pp. 291-306.

<sup>22</sup> See the *Royal Commission on Historical Monuments. An Inventory of the Historical Monuments in Herefordshire*, vol. I, London, 1931, entry under «Moccas», pp. 203-205. I am grateful to Claude Blair for bringing the references in notes 20 to 22 to my attention, and for pointing out that the Warkworth effigy is found in Northumberland, rather than Durham County.

<sup>23</sup> Thordeman, *op. cit.*, vol. I, p. 303, fig. 307.

<sup>24</sup> David Nicolle, *Medieval Warfare Source Book*, 2 vols. New York, 1996. See volume 2, *Christian Europe and its Neighbours*, p. 166.

<sup>25</sup> For this type of armor see H. Russell Robinson, *Oriental Armour*, London, 1967, pp. 144-145. The example in the Field Museum, Chicago appears as his pl. XXII, C. Others are in Madrid, Museo del Ejercito, inv. no. 43.485; Mexico City, Chapultepec Museum (inv. no. unknown); and two in the Metropolitan Museum of Art, acc. no. 14.25.703, and 36.25.334.

<sup>26</sup> See, for instance, a woodblock print executed ca. 1510, which appears in Emperor Maximilian's allegorical biography, *Theuerdank* (1563 edition) as pl. LXIX recto. It depicts two groups of infantrymen armed with matchlock guns, among whom are three soldiers wearing scale skull caps. In Maximilian's *Ehrenpforte* woodcuts of ca. 1515 two Flemish soldiers are shown in coats of scale and three others wear scale skull caps. See the Dover edition, *Maximilian's Triumphal Arch*, New York, 1972, pls. 14 and 15. Scale armor also appears once in Maximilian's last and greatest series of woodcuts, the *Triumph*, made between 1512 and 1519. See the Dover edition, *The Triumph of Maximilian*, New York, 1964, pl. 63 in which an armored horse is equipped with a scale crinet. It should be noted, however, that the armors worn by the three riders in this woodcut are purposely old fashioned, i.e. in the style of ca. 1475.

<sup>27</sup> For a summary of the *karacena* type see Claude Blair and Leonid Tarassuk (eds.), *The Complete Encyclopedia of Arms and Weapons*, New York, 1979, under *Korazin*. An example of an Italian cuirassier armor with a scale culet can be found in the armory of Windsor Castle (cat. no. 811).



Fig. 4. Knightly effigy, ca. 1330-1340. Church of St. Michael and All Saints, Moccas, England.

rest where it did, so far removed in time and place from where one might expect. Several scenarios are worth considering briefly.

Could the scales be of Native American manufacture? The form and construction of the scales, their crimped borders, the use of rivets, and the presence of tinning all attest to a long familiarity on the part of the maker with the traditional European approach to defensive armor. The obvious conclusion is that the scales can safely be identified as being of European rather than Native manufacture.

Could such a coat of scales have been made in Europe as New World trade goods? This is possible, but seems unlikely due to the amount of labor required to produce such an unusual form of armor when so much existing armor was readily available and was already being used as trade goods.

Was the coat of scales made specifically for campaigning in the New World? Again, this is possible, but unlikely. European explorers are known to have sometimes adapted their armament in the field to suit conditions in the Americas, particularly by utilizing textiles and leather defenses, but there is no precedent for constructing an armor of an unusual type in Europe for use there<sup>28</sup>.

If, as the visual evidence suggests, scale torso armor went out of general use in western Europe by the mid-14th century, is it possible that the New Mexico scales are the remains of

<sup>28</sup> There is one recorded instance of what may have been a similar armor used in the American west. In 1858 the Comanche chief known as Iron Jacket was killed by Texas Rangers in a skirmish along the Canadian river. Sergeant Robert Cotter, a participant in the fighting, described the chief as wearing a «coat of mail», which «covered his body and each piece lapped over the other like the shingles on a roof.» The armor was eagerly divided up by the victors for souvenirs. Cotter sent a small piece to Governor Marshall of Texas, but the location of this, like the other fragments, has not been identified. See an undated letter (written shortly after the event) from Cotter to Marshall in the Texas State Archives and an article by W.J. Hughes, «Rip Ford's Indian Fight on the Canadian», *Panhandle-Plains Historical Review*, vol. XXX, 1957, esp. pp. 19-20. I am grateful to Dr. Rogers for bringing this material to my attention.

a 14th century armor, which was still in service or was refurbished for use by a colonist or explorer in ca. 1600? It is known that outdated armor was sometimes worn in the New World<sup>29</sup>. If this were the case with the New Mexico scales, however, it would mean that, as a coat of scales, this armor remained in use, or was still considered serviceable, some two to three hundred years after its creation. This, again, is unprecedented in a European context and seems very unlikely.

Are the scales of central European or Byzantine origin? Lacking any extant examples to indicate the exact physical nature of late medieval armor scales from these cultural areas it is impossible to confirm or deny this possibility. There is, however, nothing to suggest that the Spanish explorers of the American South West wore anything other than the arms and equipment that were readily available, which presumably would not have included body armor from central Europe or Byzantium.

After reviewing these questions, the most reasonable, and the most significant, conclusion remaining to be derived from the existence of the New Mexico scales is that the complete coat of scales, as a form of body armor, did not disappear in western Europe during the 14th century as previously supposed, but continued to be made and worn to some extent, perhaps in isolated areas, into the 15th and possibly the 16th century. In this way it would have been possible for a coat of scales, perhaps outdated by only two or three generations, to have been brought to the region, most probably during one of the Spanish expeditions to New Mexico during the late 16th or early 17th century. Being slightly antiquated, the scale armor was probably worn a soldier of relatively modest means who could not afford more up to date equipment. In addition, a study of the New Mexico scales offers us detailed and otherwise unavailable insights into the physical nature of at least one type of scale armor as it existed in late medieval or Renaissance Europe.

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<sup>29</sup> Peterson, for instance, published two excavated helmets from New Mexico, which he dated to the late 15th or early 16th century, as having been brought there ca. 1600 (*op. cit.*, pls. 118 and 119)