sum of 193*l.* 12*s.* 7*d.* currency (English) of that time; so that it may be safely said ambassadors' outfits are of very old date. Their carpets, fifteen in number, which would have to serve as beds, cost 15*l.* 15*s.* 6*d.* The armour, including seven iron plates, eleven basinets, &c., cost 44*l.* 5*s.*

When they were fairly landed in Asia Minor, we find that they employed the Saracens as porters to carry their luggage, and perform other servile offices, so strong appears to have been the Moghul rule. At Trebisond, the climate proving rather warm, Master Buscarelli, the chief envoy, was obliged to buy a *parasole* (sic),—an item not without interest to those who have sought to trace the introduction, or early uses, of the umbrella in England. The Emperor, or Sultan, of Trebisond's cook seems to have suited their tastes, for they made him a gift of 100 aspers. The weather still grew warmer, and another parasol was bought at Tabriz, in Kurdistan. These were, including two shillings'-worth of paper, their most remarkable purchases.

On returning home to England, they brought with them a leopard in a gabea or cage (*gabbia*), which was fed on sheep throughout the journey; several being put on board the galley for its use while at Constantinum Nobilem, as it pleased the scribe to write Constantinople.

As this document is perhaps the earliest extant relating to an English mission to such very remote parts, it appeared to me worthy of being brought under the notice of the Institute. In a succeeding paper I hope to complete the Itinerary.

T. HUDSON TURNER.

ON CERTAIN ANCIENT ENAMELS.

Few of the decorative arts of past ages have excited more interest than that of enamelling on metals. This doubtless has been due in no small degree to the beauty and brilliancy of the colours exhibited by the objects so ornamented, and the difficulty and ingenuity of the manipulation employed in the process itself. The attention, on the present occasion, will be directed to a class of enamels peculiarly interesting,

as well from their antiquity as from the splendour and variety of their colours, and the material on which they have been generally executed.

Any preliminary account of the origin of the art of enamelling on metal, or of the composition of the enamel, would be unnecessary after Mr. Way's excellent paper upon the subject in the Second volume of the Journal. It will be sufficient for my purpose to notice, that from the commencement of the Christian era to about the thirteenth century, the enamelled work was formed exclusively by embedding the enamel in the metal, the metal divisions forming the general outlines of the pattern. In the thirteenth century appear plates of metal, generally silver or gold, covered with a delicate chiselling in bas-relief, and clothed with colour by means of a coating of various transparent enamels through which the pattern is seen. And, lastly, in the fifteenth century, we find plates of metal, gold or copper, coated with a thick covering of enamel, on which the design is painted.[1] In these successive processes, we perceive a tendency to the concealment and subordination of the metal that forms the groundwork of the enamel. At first the metal appears on the surface forming the principal lines of the pattern; next we see it through a coloured medium; and, lastly, it disappears altogether. This varied relation of the enamel to the metal on which it is fused, seems to supply distinctions available for the classification of the various products of the art. We hereby obtain the general divisions of them, into *embedded enamel*, *enamel transparent on bas-relief*, and *painted enamel*.[2] An accurate and scientific classification of the results of human ingenuity, is necessarily impossible, owing to the constant occurrence of combinations of various processes, and other exceptions to any rule.

In the first of these divisions, where the enamel is embedded in the metal, considerable differences will be observed in the mode of working the metal itself. In some, the divisions are formed out of the solid metal, by tooling out the portions to be enamelled, so that the enamel is what may be termed

[1] I do not mean by this that one process ceased to be exercised when the other began, but simply to mark the period of their commencement.

[2] The classification employed by French antiquaries corresponds with that here suggested; but their name for the first division, *incrusté*, when translated into English, would apply equally to all enamels. The name I have employed for the second class is naturally suggested by the term used by Cellini for this work, in which he excelled,—*opera di basso-rilievo*.

embedded in the solid; in others, the divisions are narrow strips of metal set on edge, and slightly attached to the plate at the back, so as to form a kind of filagree in which the enamel is laid.[3] It is to the examples of the latter class, to those *embedded in filagree*, that the following observations relate, in which I shall endeavour to explain the manner of their execution, and briefly notice the few examples that have survived destruction.

Theophilus the monk, *humilis presbyter*, as he calls himself, and with respect to whose country and the age in which he lived, so many different opinions have been entertained,[4] has left us, in his *Diversarum artium schedula*, an elaborate and detailed treatise on most of the arts practised in his time. He has given instructions of considerable extent for making church plate, devoting no less than six chapters of his work to the construction of the chalice alone. His chalice was to be of a large size, with a wide bowl and two handles; the material, gold, ornamented with jewels, pearls, and *electra*.[5] He gives directions for making these *electra*, from which it appears, undoubtedly, that they are enamels of the kind we are examining, that is to say, enamels embedded in filagree. Having made the vase and its handles, he proceeds to say,[6] "take a thin piece of gold and join it to the upper rim of the vase, and measure it out from one handle to the other, which piece of gold must be as broad as the stones which you wish to place upon it; and in arranging them, dispose them in this way,—first, let there be a stone with four pearls, one at each angle, then an electrum, next to which a stone with pearls, and again an *electrum*, and you will so arrange them that the stones may always be next to the handles; the settings and grounds of the stones, and the

[3] The French terms for these two subdivisions are *champlevé* and *cloisonné*, or rather *à cloisons mobiles*. The first word does not seem to convey a good idea of the process. The latter is good, but it is difficult to find an English equivalent. I have used "embedded in filagree," for want of a better.

[4] The most probable theory seems to be, that Theophilus, or Rugerus, as he is called in some MSS., was a Lombard, and lived in the twelfth century at the latest; *vide* the Introduction to Escalopier's edition of his works, Paris, 1843. A more complete text, with an English translation, has been published by Hendrie, Loud. 1847.

[5] The chalice when made must greatly have resembled that of S. Gozlin, engraved in De Caumont's Abecédaire d'Archeologie, Paris, 1850.

[6] Book iii., Chap. liv., *De Electro*. In the following translation I have left the word *electrum* untranslated; it evidently means enamel, or rather the enamelled object. Escalopier has translated the word very erroneously *cabochon;* this is a tallow cut stone, and cannot apply to these electra. Hendrie has called them sometimes glass gems, at others enamels.

settings in which the *electra* are to be placed, you will put together and solder in the order above-mentioned. Then in all the settings in which *electra* are to be placed, you will fit thin pieces of gold, and when fitted take them out, and with a measure and rule you will cut a fillet of gold, which must be somewhat thicker, and you will bend it round the edge of each piece twice so that a small space may be left between the fillets, which space is called the border (*limbus*) of the *electrum*.[7] Then with the same measure and rule you cut small fillets of very thin gold, which you will fashion into any work that you may wish to make in enamel, whether circles, or knots, or little flowers, or birds, or beasts, or figures, and you will arrange the small pieces delicately and carefully, each in its place, and will fasten them with moistened flour over the coals; and when you have filled one portion, you will solder it with great care, so that the slender and thin gold may not be disjointed or melted, and you must do so two or three times till the separate pieces somewhat adhere.

"Having thus put together all the *electra*, and soldered them in this manner, take all kinds of glass which you had prepared for this work, and breaking a particle from each lay all the fragments upon a piece of copper, each fragment by itself, and placing it in the fire, arrange the coals around and over it, and blowing carefully you will see whether all the pieces melt equally: if so make use of them all. Should, however, any particle be harder than the rest, put it aside by itself, and taking separate pieces of the glass which you have tried, place them in the fire one by one, and when each has become white with heat throw it into a copper vessel in which there is water, and it will immediately fly into small particles, which you will proceed to break up with a round hammer until they are made quite fine, and you will then wash them and place them in a clean shell and cover them with a linen cloth.[8] Thus you will prepare each colour. This done, take one of the pieces of gold which have been soldered together and fasten it with wax to a smooth table in two places, then take a goose quill and cut it to a point as if for writing, but with a longer beak and not split; with it you will take out one of the coloured glasses, [which

[7] This narrow border, enclosed in a double line, is not a necessary part of the process, and is to be found in few of the remaining specimens.

[8] The Codex Guelph, which has been followed by Escalopier, gives here *laneo* (woollen), for *lineo* (linen).

must be moist, and with a long copper instrument, slender and fine at the point, scrape the glass gently from the beak of the quill, and fill any flower you wish,[9]] replace the remainder in its little vessel and cover it up, and so do with each colour until one piece (of the goldwork) is filled; take it off the wax to which it had stuck and place it upon a thin piece of iron with a short handle, cover it with another piece of iron, which must be concave like a cup[1] and perforated all over so that the holes may be smooth and wide inside, but smaller and rough outside so as to keep out any ashes which may fall upon it. This done, put together great and long pieces of charcoal, making them burn up well; in the middle of which make a hole and level it with a wooden mallet, into which raise the iron by the handle with a pair of tongs; so place it carefully covered, and arrange the fuel round and above it on every side, and taking a pair of bellows you will blow it well in every direction till the coals burn equally. You may have also a wing of a goose, or other large bird, which is stretched and tied to a stick, with which you will fan and blow strongly till you see amongst the coals that the perforations in the iron are white with heat; then cease blowing, and waiting about half-an-hour, uncover it by degrees till you have removed all the coals; then wait again till the holes in the iron appear black inside, and so take up the iron by the handle, and place it covered at the back of the furnace in a corner till it is quite cold: and opening it, take out the *electrum* and wash it, and again fill it, and melt it as before, till it is all equally fused and quite full. This done, take a piece of wax about half a thumb's length and fit the *electrum* into it, so that the wax may be all round it, by which wax you will hold it. [And you will diligently rub the *electrum* upon a smooth sandy stone with water, till the gold appears equally everywhere.] Then rub it for a long time on a smooth and hard hone till it acquires some brightness; and also upon the same hone, moistened with saliva, you will rub a piece of pottery, such as is found broken from ancient vases,[2] till the saliva has become thick and red; this you spread

[9] This passage is from the Codex Guelph. It is omitted in the Harl. MS.; but seems necessary to the sense.

[1] This greatly resembles the form of the muffle commonly used. For an engraving of the one employed in the painted enamels of Limoges, *vide* Blancourt, Histoire de la Verrerie.

[2] Is this the red sealed ware of the Romans, which is commonly, but inaccurately, termed "Samian"?

upon a smooth leaden tablet till the colours become translucid and clear, and you again rub the piece of pottery upon the hone with saliva, and spread it upon a goat's skin smoothly fixed upon a wooden table; upon this you polish the electrum until it shine perfectly, so that if one-half be made wet, and the other remain dry, no one should be able to distinguish which is the wet part and which the dry."

Such is the mode of making these enamels, as described by Theophilus. With regard to the coloured glasses employed, we learn from the Twelfth chapter of the Second book, "*De diversis coloribus vitri, non translucidis*,"—"Different kinds of glass found in Mosaic work, in the ancient edifices of the Pagans, namely, white, black, green, yellow (*croceum*), sapphire, red, and purple, and they are not clear but opaque like marble, and they resemble square stones, of which are made *electra* in gold, silver, and copper, of which we will speak fully in their place. Divers small vessels are also found of the same colours, which the French, very skillful in this work, collect, and the blue they melt in their furnaces, adding a little clear white glass, and they make plates of sapphire of great value, and very useful in windows. They make the like also of the purple and green." It appears then that it is to the ancient mosaics that the enameller of this period went for his store of coloured glass. Almost the only transparent colours to be found in remaining specimens are the blue, purple, and green, which supports the statement of Theophilus. The perfect preservation of the gold fillets, and the crystalline appearance of some of the transparent enamels, would lead one to suppose that the glasses were easily fusible, and that the objects were not exposed to a very high temperature; this is borne out by the presence of an opaque red enamel, in a specimen in the Museum of Practical Geology, which owes its colours to an oxide of iron, and at a high temperature would turn black.[3]

The metals which were used for the groundwork of these enamels appear, from the passage of Theophilus quoted above, to have been, gold, silver, and copper,—the only pure metals which were ever enamelled. Of these, gold, from its superior ductility and beauty, was doubtless most commonly

[3] I am indebted for this information to Sir Henry De la Beche, and take this opportunity of recording the kindness with which he has allowed me free access to the interesting series of enamels in the Museum of Practical Geology.

used. We accordingly find that almost all the remaining specimens of European workmanship are executed in this precious material. I have never heard of any examples in silver, and only one in copper.

It has been supposed that it is to the Greek goldsmiths of Byzantium that we are indebted for this process of enamelling. At any rate, whether it originated with them, or was borrowed from some more Eastern nation, they most probably introduced this particular process into Europe. The most important remains of the kind are all of undoubted Greek workmanship; and a considerable Byzantine influence may be traced in the greater part of those which seem to have been executed in other countries; added to which, we know of no other kind of enamelling being practised by the Greek artists of early times.[4] This is probably owing to their more usually enamelling on the precious metals. Had they employed copper more frequently, they would no doubt have soon had recourse to the very similar process of embedding the enamel in the solid metal.

We have no trace of the existence of this art in Constantinople before the ninth century. The Iconoclastic fury raging in the East during the eighth century probably caused the destruction of most works of the kind, and prevented others being undertaken. The first notice we have relates to Basil, the Macedonian (A.D. 868—886), who built in his palace at Constantinople, an oratory, which he ornamented with gems and other rich ornaments; amongst which were crucifixes, which are considered, from the expression used, to have been in enamel.[5] Constantine Porphyrogenitus in 949, sent ambassadors to the Caliph Abd-ur-rahmán, at Cordova, with a letter "enclosed in a bag of silver cloth, over which was a case of gold, with a portrait of King Constantine admirably

[4] There are in the Louvre at Paris three small medallions of silver, representing saints, that have much the appearance of Greek art, in which the enamelled portions are embedded in the solid metal. The colours employed are a vermilion red, light blue, and light green. The faces are in silver. The enamels are very poor, and being unaccompanied by Greek inscriptions, they may have been worked elsewhere. If Greek, they must belong to a date more recent than the specimens we are noticing. Two of them have been engraved, and described by M. Longperier in the Cabinet de l'Amateur et l'Antiquaire, vol. i., p. 152.

[5] Life of Basil by Constantine Porphyrogenitus:—*ἐν ᾗ κατὰ πολλὰ μέρη καὶ ἡ θεανδρικὴ τοῦ κυρίου μορφὴ μετὰ χυμευσέως ἐκτετύπωται.* Published in the *συμμικτα* of Leo Allatius. Cologna, 1625, p. 150. For a dissertation on the word *χύμευσις*, see Labarte's Introduction to the Debruge-Dumenil Collection.

executed on stained glass."[6] This is far more likely to be enamel than glass.

It is, however, from the existing remains of this art that we must seek evidence of the skill of the Greek artists. It may be as well, then, to notice such specimens as are still preserved, in the chronological order to which they seem to belong.

1. One of the most interesting, and at the same time most ancient, existing examples is represented in the engraving opposite. It is a cross, which formed part of the Debruge-Dumenil collection (No. 661 of the Catalogue), and is now in the collection of A. J. B. Hope, Esq., to whose kindness I am indebted for permission to exhibit it to the Institute, and to have the accompanying engraving made. This cross consists of two cruciform plates of gold, enamelled, and set in silver gilt; thus forming a kind of box or reliquary. The setting, as it now exists, is very plain, and appears more recent than the enamels themselves. It has, therefore, been omitted in the engraving here given. On one side is represented the Saviour on the cross, clothed in a long tunic of various colours, the feet separately fixed to the *suppeditaneum*, or wooden tablet; over the head is the monogram IC. XC.[7] The presence of the Father is considered to be indicated by the letter Π (the initial of πατηρ) at the top of the cross, occupying the position of the more usual symbol, a hand in benediction. At the foot of the cross appears the skull of Adam, in whose tomb the cross was supposed to have been fixed at Golgotha. On the Saviour's right is the Blessed Virgin, in a deep transparent blue robe; on the left St. John, beardless, and with short black hair. They are accompanied by the abbreviated inscriptions, ΙΔΕΟΥϹ—ΔΟΥΙΜΗΡϹ, *ἴδε ὁ υἱος σου—ἰδοὺ ἡ μήτηρ σου*, the Saviour's address to them from the cross. On the other side there is a full-length figure of the Blessed Virgin. Above whom appears St. John Baptist, with long hair and beard, and the inscription ΙΩΑΝΗϹ; below, St. Paul, ΠΑΥΛΟϹ; on the right and left, St. Peter, ΠΕΤΡΟϹ,

[6] Quoted from Ibnu Hayyan, by Ahmed Ibn Mohammed Al-Makkarí, in his History of Mohammedan Dynasties in Spain, translated by Gayangos, Lond., 1843, vol. ii., p. 141. Mrs. Merrifield has quoted this passage as an authority for the practice of the art of *staining* glass at so early a period. The Arabic word has probably been misunderstood by the translator.

[7] The X, it will be seen, is very irregular, and resembles a K. If it is the latter letter, it may be the contraction for *κύριος*.

Gold cross, from the Debruges Collection.

In the possession of Alexander J. Beresford Hope, Esq., M.P.

and St. Andrew, ΑΝΔΡΕΑC. The inscriptions, it will be seen, are very irregular, partly owing no doubt to the difficulty of shaping the gold fillets, of which they, as well as the outlines, are formed. These fillets, to which it has been scarcely possible to do justice in the engraving, are very thin bands of gold, one ninth of an inch broad, very slightly attached by their edges to the plate at the back. The colours of the enamels employed are numerous, amounting in all to thirteen. Three of these are transparent; blue, purple, and green: dark, and very brilliant. The remainder are opaque, consisting of two whites, one bluish, the other yellowish; three blues, light, full, and greenish; light yellow, flesh colour, light green, red, and black. The ground to the figures and inscriptions is of the transparent green; the glories yellow, the hair black or bluish white.

This interesting object was probably worn as a pectoral cross, and contained a relic. A hole has been barbarously broken through the centre of one of the sides, by a devotee, it is said, of the last century. The rudeness of some of the outlines, the very unusual symbol employed for the first Person of the Trinity, and more especially the absence of the ἅγιος, or any contraction for it, before the name of the Apostles, all seem to carry back the date of this relic to an early period. M. Labarte considers the date of it to be not later than the tenth century; it may well be earlier. It is greatly to be regretted that so interesting and rare a specimen of ancient workmanship should not have been secured for the national collection.

2. In the Library at Munich is the cover of a Book of Gospels, executed by order of the Emperor, Henry the Second, for the Cathedral of Bamberg, about 1004. On one side of this book-cover is an ivory tablet, exquisitely sculptured in relief, and surrounded by a border of gold, ornamented with pearls and enamels. At the corners are enamelled medallions, representing the symbols of the Evangelists. Between them are placed twelve other medallions, representing half figures of our Lord and eleven Apostles. These medallions are all executed by the filagree process. The names of the Apostles are given in Greek, and are executed by fillets of gold on a coloured ground, as in the specimens last described. The date of the cover is placed

beyond a doubt by the inscription it bears, recording its being made by order of the Emperor.[8]

3. The specimen next to be noticed is the largest and most interesting example remaining of the enameller's art, namely, the Pala d'Oro, at St. Mark's, Venice. This splendid altarpiece is composed of two portions, united by hinges, and placed one above the other, the lower one being twice the height of the upper. The centre of this lower division is occupied by a large square composition, consisting of enamelled medallions representing our Lord, the four Evangelists, and several other saints. Under this are five compartments, containing figures of the Blessed Virgin, Doge Faliero, and the Empress Irene, and some inscriptions. On either side of the centre compartment, are three rows of figures, six in each row; the lowest row contains prophets, some with Greek, others with Latin, inscriptions. The middle row is one of apostles, and the upper one of archangels, with Greek inscriptions. Along the top of the whole lower division of the altarpiece is a series of seventeen panels, eleven of them representing scenes from the life of Christ; the other six, diaconal saints. On each side of the division are five subjects from the life of St. Mark; they all have Latin inscriptions. The upper division of the altarpiece contains, at its centre, a large medallion representing St. Michael, with his name in Greek, surrounded by many small medallions of saints; on each side of this centre, are three large plates representing scenes from the life of Christ (with Greek inscriptions), measuring no less than $12\frac{1}{2}$ by $12\frac{1}{4}$ inches. All the enamelled medallions of the altarpiece are set in silver-gilt, and surrounded with gems. The silver ornaments consist of friezes and canopies very Gothic in their details; among them are scattered small square medallions of enamel, representing saints.

The early history of this curious relic is rather confused; there seems to be no doubt that in 976, Pietro Orseolo I., Doge of Venice, "commanded an altarpiece for the church of St. Mark, to be made at Constantinople, of wonderful workmanship in gold and silver." Sansovino informs us, that owing to many accidents, it was not brought to Venice from

[8] This description is partly taken from Labarte's Introduction to the Debruge Catalogue, p. 120; *vide* also Lord Lindsay's Christian Art, vol. i.

Constantinople till the Dogeship of Ordelafo Faliero, in 1105. Cicognara not believing it possible that the work should be so long in progress, comes to the conclusion that the Pala must have been sent to Venice soon after it was ordered, and was only altered and reconstructed with additions by Faliero. At any rate the inscription on the Pala itself records, that in 1105, under the Doge Ordelafo, it was made new (*nova facta fuit*); that it was renewed under the Doge Pietro Ziani, in 1209, and that it was ultimately restored and enriched with gems by the Doge Andrea Dandolo, in 1345.[9]

On examining carefully the engravings given by Cicognara and Du Sommerard of the altarpiece, and some of its details, I feel convinced that the six large subjects at the top, the Archangel Michael, the twelve archangels, and four of the prophets, which all have Greek inscriptions, are of the same date and workmanship as the figures of the Empress Irene and the Doge Faliero. They must, therefore, have been made about 1105, and at Constantinople. The remainder of the enamelled medallions, amongst which occur repetitions of the subjects enumerated above, though in a different style, and which are accompanied by Latin inscriptions, must therefore belong to the alteration made by Pietro Ziani, in 1209, and may have been made either by native artists, or Byzantine workmen residing at Venice. Lastly, the setting and silver work of the whole, which is very Gothic in its details, and contains some beautiful heads of saints in silver, belong to the renewals of Andrea Dandolo, in 1345. We learn from an inscription which has come to light during recent repairs, that Giambattista Bonesegna was employed in their execution in 1342. The general effect of this altarpiece is very gorgeous; the art displayed in it is necessarily somewhat limited, owing to the unmanageable nature of the materials.[1]

[9] These inscriptions are as follows :—

"Anno milleno centeno jungito quinto
Tunc Ordelaphus Faledrus in urbe ducabat
Hæc nova facta fuit gemmis ditissima pala,
Quæ renovata fuit te, Petre, ducante Ziani
Et procurabat tunc Angelus acta Faledrus
Anno milleno bis centeno que noveno
Post quadrageno quinto post mille trecentos
Dandolus Andrea preclarus honore ducabat
Nobilibusque viris tunc procurantibus almam
Ecclesiam Marci venerandam jure beati
De Lauredanis Marco Frescoque Quirino
Tunc vetus hæc pala gemmis pretiosa novatur."

[1] Lord Lindsay, in speaking of the Byzantine art of the tenth and eleventh centuries, characterises the Pala d'Oro as "an accumulation of sculpture and painting of the most wretched description," and compares it, much to its disparagement, with the ivory carvings on the Bamberg missals noticed above. Now, the only sculpture in the Pala is some

4. In the Royal Museum at Copenhagen, is preserved a curious little pectoral cross, of the same kind as that already engraved, but smaller. It consists of two portions united by hinges; on one side is represented the Saviour on the cross, with the usual monogram; on the other are represented five circles containing half-figures. In the centre, is the Saviour blessing; on his right, V. Mary; on his left, St. John; above is St. Basil; below, St. George: the inscriptions are in Greek. Before the names of the saints occurs the contraction for ἅγιος. The ground to all the figures is enamel.

This cross is peculiarly interesting from its having been found in the tomb of Queen Dagmar, at Ringsted. This lady, whose real name was Margaret, was daughter of Ottocar, king of Bohemia. She was born in 1186, and, in 1205, married Valdemar II., king of Denmark. She died in 1213, and was buried at Ringsted. It is not improbable that she brought the cross with her from Bohemia.[2]

5. In the Convent of Notre Dame, at Namur, is preserved a silver-gilt cross, once belonging to the Monastery of Ognies. This interesting object has double arms, and is of the shape usually called patriarchal,—a very common form in Greek crosses, and generally intended to contain a fragment of the Holy Cross. The front is ornamented with seven enamelled medallions. The medallion at top contains the favourite Greek subject, ετοιμασια, the preparation. The others represent SS. John, Matthew, Mark, Peter, and Panteleemon, and the Archangel Gabriel. The figures are all executed in various colours, on a gold ground, in which the inscriptions are engraved. The names of the saints are preceded by the contraction for the word ἅγιος. They exactly resemble, in workmanship and design, the small medallion which will be next noticed, but are round instead of square. The spaces between the medallions are filled with filagree ornaments and stones. The colours employed in the enamels are opaque, with the exception of the flesh colour and the green; the flesh colours appear slightly shaded in the faces. The cross rests on a foot of copper gilt,

silver work of the fourteenth century, and the enamelled plates can scarcely be reckoned painting. In considering merits of works of this kind, allowances should be made for the difficulties of execution. Had Lord Lindsay examined the enamels surrounding the Bamberg carvings, he would have found that they were no better than those on the Pala d'Oro.

[2] Engraved in Memoires de la Societé des Antiquaires du Nord, 1840-43, pl. x.

consisting of a triangular base and knop composed of foliage, intermingled with lions and griffins; on the knop appear the evangelistic symbols. This foot is evidently not Oriental; it exactly resembles the work of Limoges, at the commencement of the thirteenth century, and has been added to the original cross. This strongly confirms the account that the cross was brought from the East by Jacobus de Vitry, Bishop of Ptolemais and Cardinal, who retired to the Monastery of Ognies, where he died in 1244.[3]

6. In the Museum of Practical Geology is a small gold enamelled plate represented in the accompanying woodcut. On it appears the bust of St. Paul, accompanied by the inscription—Ο ΑΓΙΟC ΠΑΥΛΟC. The figure and inscription are in enamel, on a gold background, and are executed in a manner slightly different from that described by Theophilus. The portions intended to be enamelled are sunk in the plain plate of gold, forming a kind of case, in the shape of the outline of the object to be represented. The fillets are then arranged in this case, and the enamels filled in as usual. The colours employed in this specimen are seven in number, all opaque. The hands and face are flesh colour, so managed as to give the appearance of shading; the hair and inscription are black; the glory and ornaments on the book greenish blue; the book itself red, with yellow edges.

This specimen greatly resembles in workmanship the medallions on the cross last described. It came from a sale of duplicates of the Debruges collection, some time since, and is said to have formed part of the Pala d'Oro. If so, it belongs to a third set of enamels on that monument, as it differs in style from both the sets already noticed.

The examples hitherto described are all executed in gold. We have seen from Theophilus that copper was occasionally employed for this kind of enamelling; and the specimen next to be described is on that metal, being the only one I have met with of Greek workmanship.

7. This interesting object is a portion of a book-cover in the collection of Count Pourtalès-Gorgier, at Paris, and once

[3] A description and engraving of this cross will be found in the Annales Archeologiques, tom v., p. 319.

belonged to the Duke of Modena. On it is represented St. George in armour, standing, and piercing a dragon at his feet. On his right is his charger; at the side of the head is an inscription in Greek. A few of the principal outlines of the figures are represented by very broad bands of metal, which appear to be part of the solid background. The remainder of the lines are very fine fillets of copper, set on edge, and gilt. The enamels are opaque. A portion of the border of gilt metal remains, representing scrolls and figures of saints and angels, with Greek inscriptions.

These are the only specimens of this kind of enamel which appear to be undoubtedly of Greek workmanship. I shall reserve for a future occasion such specimens as seem to have been executed by artists of the Byzantine school in other countries, or by the native artists themselves.

A. W. FRANKS.

SOME REMARKS ON SEALS, WITH SUGGESTIONS FOR A PRACTICAL MODE OF CLASSIFYING THEM.

SEALS, in some of their various kinds, have now, for a considerable time, deservedly held a distinguished place in the estimation of those who have been engaged in antiquarian researches. They present a wide field for investigation and speculation. The reader, who may be curious to learn something of its extent, or of their history, may consult with advantage the treatise contained in the fourth volume of the *Nouveau Traite de Diplomatique.* The medieval use of them, originally in the form of rings, so convenient for an unlettered age and race, may be traced to an early period of the Frankish and Germanic history. But among the Anglo-Saxons the general practice of authenticating writings, even the most formal and important, was by signing them with a cross. Edward the Confessor, however, had a seal, and other instances of Anglo-Saxon seals have been alleged, which some antiquaries have regarded with suspicion; and it is foreign to the present purpose to enter upon the question of their authenticity. Certainly seals did