A common and graceful form of private seal in the 13th and 14th centuries has simply a shield with the owner’s arms on a diapered

background, the

whole enclosed with­

in many-cusped tra­

cery. Fig. 8 shows

an example of a fine

Græco-Roman gem,

—a carnelian en­

graved with a female

head, full face. The

14th-century owner

of this has added a

metal setting with

the words capvt .

MARIE . MAGDALENE,

to give it a sacred

meaning. The le­

gends of private seals or *secreta* were often chosen in allu­sion to their use ; common phrases are “ clausa secreta tego,” or “ lecta lege, tecta tege.” Many

ingenious devices were practised to enable

the same matrix to give two or more dif­

ferent varieties of impression. In some

cases the border with the legend was so

contrived as to slide up the handle, so

that the seal could be made either with

or without an inscription. Others had

the border made to revolve on a swivel,

so as to supply two different legends ; and the magnificent monastic seals (as that shown in fig. 2) were arranged so as to give a perfect seal without the use of the ela­borate open tracery. In the 15th and 16th centuries mer­chants and handicraftsmen frequently employed devices connected with their trade—either some tool or badge or an arbitrary sign used as a trade-mark ; or a rebus of the owner’s name was used, such as a bolt and a tun (cask) for the name Bolton. The use of seals by the humbler classes was more common in England than abroad ; even bonds­men sometimes had seals, both before and after the Nor­man Conquest. Seals of other countries mostly followed

the same fashions as those of England, though of course varying in design and workmanship with each country. On the whole, the English seals were superior during their best period (the 14th century) to those of any other country, though matrices of great beauty were produced in both Germany and France. In Italy less care and skill were usually spent on seals, partly owing to the greater use of metal bullæ for important charters.

*Metal Bullæ.—*These are necessarily not *plaqué* but *pen­dant,* and are held usually by cords passed through a hole in the seal. Lead was the metal most commonly used, but some sovereigns had bullæ struck in silver or gold, either as a mark of their own dignity or to confer special honour on the recipient of a charter. An extant letter from Petrarch to Charles IV. thanks that emperor for a diploma of the rank of count, and especially for the honour shown to him by the attachment of gold bullæ to the document. Lead bullæ were also used by various ecclesiastical dignitaries, from patriarchs to bishops, but were rarely used by ecclesiastics of lower rank. In some cases, however, especially in Sicily and Byzantium, bullæ were used by laymen of very moderate rank. A large num­ber of fine papal bullæ @@1 exist dating from the 7th century onwards. @@2 Since the time of Pope Paschal II. they have borne heads of St Peter and St Paul ; previously they had such simple devices as crosses or stars, with the name of the pontiff. Another early series of bullæ begins in the 8th century with the bullæ of the patriarchs of Byzantium. Those of the doges of Venice exist in large numbers, bear­ing figures of St Mark and the reigning doge kneeling before him. Existing bullæ of Charlemagne have a rude profile portrait crowned with a diadem, and on the reverse the monogram of karolvs arranged in the form of a cross.

Consult, in addition to the works named above, Thulemarius, *De Bulla Aurea,* Frankfort, 1724 ; Römar-Büchner, *Die Siegel der deutsch. Kaiser,* Frankfort, 1851 ; Vossberg, *Gesch. der der Russischen Siegel,* Berlin, 1843 ; Melly, *Siegel-Kunde des Mittelalters,* Vienna, 1846 ; Heineecius, *De Sigillis,* Frankfort, 1709 ; Lepsius, *Sphragistische Aphorismen,* Halle, 1842-43 ; Caulfield, *Sigilla Ecclesiae Hibernicæ,* London, 1853 ; and more especially various articles in the *Gaz. des Beaux-Arts, Archæologia, Archaeological Journal,* and *Proceedings* of other antiquarian societies. (J. H. M.)

SEAMANSHIP is the art of sailing, manoeuvring, and preserving a ship or a boat in all positions and under all reasonable circumstances, and thus involves a sound practical knowledge of all the forces by which she may be actuated and the means at command to assist or counter­act them ; it is a branch of applied mechanics acquired by experience and study. The former can only be obtained thoroughly in many years spent at sea, in personal con­nexion with the work of the ship and her boats ; that such training should commence at an early age is very desir­able, if not even imperative. The practical knowledge so gained should be supplemented and improved by reading, conversation, and discussion, as the casualties which befall ships are so varied that a man may pass forty years in sea­going vessels without experiencing one-half of those which might occur. Many of the old maxims are still applicable to every class of vessel and must always remain so.

The terms “ship” and “vessel” are here intended to embrace all classes, though “ ship ” is generally applied to the larger without reference to form or description unless such is specified. Though the use of sails has been greatly superseded by the introduction of steam-power both in the navies of all nations and in the mercantile marine, it is still generally admitted that seamanship is best acquired

on board a vessel which is dependent upon her sails. The construction and equipment of sailing ships had reached a high point of perfection at the time steam came into general use. The power derived from the steam-engine does not change any of the former conditions, but simply adds another element, confined to propulsion directly ahead or astern (except with reversible wheels or twin screws), which when combined with sails renders a ship much more manageable and safe,—that is to say, assuming all the forces at command to be properly applied. Hence it is very desirable that all ocean-going steam vessels should have sufficient sail-power to turn them round (wear) or to enable them to sail with the wind abeam without steam, especially when fitted with single screws or with paddle wheels which do not work separately. Twin screws, of course, give a double chance as far as the engine is concerned ; but even with that advantage the loss of the rudder would leave the ship in a helpless condition if she had not efficient head and after sails to balance her on the desired course.

At present the excessive desire to make quick passages has greatly augmented the danger unavoidably attending a sea voyage, the risk as well as the violence of a collision

@@@1 The term “ bull ” for a papal charter comes from its lead *bulla.*

@@@2 See Ficoroni, *Piombi Antichi,* Rome, 1745.