The history of stringed keyboard instruments as known in England can be traced back to the earliest reference of the chekker, an instrument with an uncertain mechanism which is first mentioned in 1360 when the English King purchased one from a “Jehan Perrot”, probably a Frenchman, to give to the French King. It is also around this time that the earliest domestic keyboard music, the Robertsbridge Codex, was compiled. However, despite other references and illustrations of keyboard instruments, dating from the 1460s, in both rectangular clavichord form and with strings running away from the player as in a harpsichord, there is little that can be said with certainty about stringed-instrument making in England until the start of the sixteenth century.  
  
It is at the start of the sixteenth century that various types of stringed keyboard instruments appear in Inventories and Court records, although rarely are they described in enough detail to give any indication about where they might have been made, much less what there decorative and musical characteristics might have been.   
  
It has been said often enough, but is always worth repeating, that in England from the start of the sixteenth century (at least) until the end of the seventeenth century, the term “virginall” was not restricted to the rectangular or pentagonal form we know today, but encompassed all plucked keyboard instruments. Therefore any reference to a virginal might, in fact, refer to a harpsichord rather than the common rectangular instrument.  
  
As shall be seen, by the time of the first surviving instruments, dating from the last-third of the sixteenth century the design and decorative form of the “typical” English virginal had become established. There are, naturally, exceptions to any generalisations, but the early dated English virginals from the seventeenth century have sombre dark oak cases, decorated on the outside by only iron hinges, locks, hasps and turnbuckles. The interiors, on the other hand, have painted lids and keywell flaps, contrasting red cedar mouldings and gilt pressed papers around the soundwell, keywell and faceboards, and soundboard paintings and gilded roses. The keyboards of these early dated instruments have boxwood naturals and dark accidentals. The standardised decoration of these earliest dated instruments is perhaps less surprising as they are all the work of the same decorator even though they respresent the work of different makers. However, the instruments from slightly later show the same features.   
  
Two English virginals are unsigned and undated, probably as a result of their original jackrails being missing, and have become known as "Mar" and "AH". The Mar virginal gets its name from its ownership by Marie Stuart, a daughter of Esme Stuart, the favourite cousin of James the Sixth of Scotland. At her marriage she became the Countess of Mar. The Earl and Countess of Mar became the custodians of James the Sixth's children when he moved to England to become King James the First following the death of Queen Elizabeth in 1603. One of these children was Princess Elizabeth, who later became the Queen of Bohemia and, more importantly for us, it was her own marriage which resulted in the publication of Parthenia, the first printed edition of keyboard music in England. The AH instrument gets its name from those initials painted in the lid, probably representing the original owner. I date both of the instruments to the period from around 1570 to 1580. I shall discuss these instruments in more detail shortly, but shall now return to the start of the sixteenth century. The earliest details we have which give descriptions of English virginals comes from a series of Inventories compiled at the end of the reign of Henry VIII. The earliest of these dates from 1543. In these Inventories the instruments of his household are described in some detail. A typical entry reads :   
"One newe paire of double Virginalles couered with blacke leather with smale roses printed and gilte upon it the lidde lined with grene satten and garnished upon with redde silke Ribonne lozenge wise"  
It is not possible, even from such a relatively precise description, to conclude anything about the design or place of manufacture of the instrument. It is certainly possible that it was English-made, but a continental origin cannot be excluded. The purpose of the Inventory is not to record technical details but to provide a relatively concise description of what is there for future reference.  
  
Of the earlier dated references to virginals, perhaps the best known records payments made to the maker William Lewes in 1530. This list includes :   
"paied to Willm lewes for 2 payer of virginalles in one coffer wt 4 stoppes brought to Greenwiche, £3."  
"And for 2 payre of virginalls in one coffer brought to the More other £3."  
"And for a little payre of virginalls brought to the more: 20s."  
  
The first of these entries has caused considerable comment over the years. The entry has variously been described as a double-manual harpsichord with four registers or two entirely separate instruments in a single outer case. I shall only briefly discuss these instruments to say that the last entry probably refers to a small rectangular virginal. The second instrument also has the magical "2 pairs of virginals", and the same price, but does not indicate the number of registers. We can assume there were not four, since that would have been mentioned as in the first entry. The instruments in the payment entry can never be positively identified, but I shall point out that a Ruckers "transposing" double-manual harpsichord can be described in exactly the terms of the first entry. It is two separate instruments in one case and has four stops or registers. There were two major different pitch levels in England during the sixteenth and (most of) the seventeenth century, now referred to as "quire" pitch, which is about one-and-a-half semitones above modern pitch, and "organ" pitch, which is a perfect fourth above quire pitch. It is, at the least, not impossible that the Lewes instruments were very early transposing harpsichords which preceded the surviving Flemish instruments.  
  
The instruments listed in the Inventories of Henry VIII probably represent the typical instruments found in aristocratic houses in the first-half of the sixteenth century. As they are only described visually, it is often difficult to determine a country of origin of many instruments. A pair of instruments are described as having cypress cases. Despite cypress being used as the soundboard wood of the 1622 Hasard harpsichord at Knole, and being mentioned as a potential soundboard wood in the Talbot Manuscript, written in England c. 1690, it is perhaps more likely that these instruments are Italian in origin.   
  
More common, and of more interest, are the numbers of instruments which are listed as having their cases "vernisshed yellow". For the case to be varnished yellow, the wood must be of a light colour. Cypress can be ruled out as it is mentioned elsewhere in the Inventories, leaving the most likely wood to be maple. Maple is a commonly-found wood in two different important keyboard instrument-making traditions in the first-half of the sixteenth century, used in both Naples and Flanders. It should be pointed out that there was a strong political relationship between Naples and Flanders at this time. From the early decades of the sixteenth century Charles the Fifth ruled huge areas of Europe including Spain, the Burgundian Empire including Flanders as we know it, and parts of southern Italy including Naples. That there were two separate, but similar, traditions of instrument making should not come as a surprise. Up until the middle of the sixteenth century about 80% of England’s exports went to Antwerp. This figure is somewhat misleading as a simple statistic, since the vast majority of this was the export of wool, but it does point to clear trade between the two places. Further, John Koster has informed me, and will no doubt discuss further here, that there is a record of an Antwerp-made keyboard instrument being exported to England. No doubt other instruments were also exported from Antwerp to England, and records of them will be found in due course. As a result of this I would not wish to guess the likely origin of the maple-cased instruments mentioned in the Inventories, other than to say that Naples, Spain or Flanders are all possible, and perhaps instruments originated in all three places.   
  
Of course, as shown by the references to English-made instruments by William Lewes, it is possible, even likely that the majority of the instruments used in England in the middle of the sixteenth century were, in fact, made in England, and that the maple-cased instruments could, in theory at least, also be of English manufacture, although oak is a much more common wood and also occurs regularly in the Inventory. As we move into the second half of the sixteenth century it becomes clear that there were more makers working in England, even if, as shall be shown, these makers were not all necessarily English-born.  
  
The earliest surviving English virginal was made about a quarter of a century after the last of the Inventories of Henry the Eighth. This instrument is the AH virginal mentioned previously. This instrument retains much of its original decoration, but has lost a great deal of its constructional integrity. The instrument itself is 1499 mm long, 485 mm wide, and 190 mm deep, or, more understandably, 4 foot 11 inches long, 19 inches wide, and seven and a half inches high, not including the lid. All of the original casework is oak. The instrument retains its lid in original coffered form, and is the only surviving English virginal in which the keywell flap only spanned the width of the keywell itself. The decoration on the keywell flap echoes that of the lid, consisting of Latin mottos surrounded by arabesques. The lid has six small diamond panels, each containing a painting of a bird or flower. The original gilt embossed papers can be seen around the keywell, the left and right case ends, and on the bass jackrail support. The soundboard is decorated with sparsely applied birds and flowers, and with arabesques in some of the corners. There is a single rose, situated behind the keyboard to the front of the register. The present rose is unoriginal, consisting of a crudely cut basic wooden geometric pattern backed by a type of coarse fabric.   
  
Unfortunately, the original instrument has undergone a particularly drastic restoration which was clearly never intended to be anything more than visual. The spine, both bridges, soundboard register, wrestplank capping pieces, and the jackrail are all replacements, probably dating from the early twentieth century. Other internal elements may also be new, although the instrument’s design and method of construction make it difficult to confirm this.   
  
These replacements have generally been carried out very competently in terms of workmanship, but clearly appear to be the work of a cabinet maker or joiner rather than a knowledgeable instrument maker. The original spine would almost certainly have been dovetailed to the case ends, but is now butt-jointed. The baseboard has not been altered at all, as can be determined by original nails still protruding from the rear, so the inside edge of the present spine must be in essentially the same position as the original spine. The present spine is of oak, and is considerably thinner than original examples. The original case width can be estimated to have been approximately 489 mm.  
  
The present bridges follow the shape of the original bridges fairly exactly. The new bridges are of poplar, with a flat top, rather than the beveled top as found on other instruments. Although the width must be extremely close to the original, the height appears rather extreme, suggesting that the original bridges were missing when the instrument was restored, although their positions could be clearly determined from the fresh marks on the soundboard. Likewise, the wrestplank capping pieces follow the original positions, but are about twice as deep as they would likely have been originally.   
  
The one replaced part which shows the poor knowledge of the restorer is the soundboard register. Like all of the signed virginals, it is glued to the top of the soundboard, but is of wood rather than leather. The slots are much wider than ever could have been used to align the jacks securely, and rather extraordinarily, number only 48 instead of the required 50. Although the instrument currently has strings on it, it is clear that they are merely there for visual effect and the instrument could never have worked in its present setup.  
  
The keyboard has a 4 octave C – c’’’ compass, and an examination of the lower guide shows that the lowest note had an extra jack and string. This last feature is also found in the Mar virginal, and in most of the early signed English virginals. Having examined all of the possibilities, it appears that the only plausible reason for this is to have a second string at the same pitch, although the musical advantages of this are unknown. The keylevers are of pine. Most of the natural touchplates are replacements, but the surviving original plates are of boxwood. The accidentals appear to be of pear, with an inlaid section featuring a thin sandwich of sycamore surrounded by strips of ebony either side of a central sycamore piece with random knife cuts from left to right giving a pseudo-chequered appearance.   
  
The presence of the lower guide, in conjunction with bridges in the original positions, allows estimates to be made about the original string lengths with some degree of accuracy. English virginals used c’’’, that is the c which is two octaves above middle c, as their scaling-design note, and in the AH virginal it was probably 6 inches long. This scale is found in about half of the surviving English virginals and these instruments were probably tunes to quire pitch, which, as stated previously, is between one and two semitones above modern pitch.  
  
English virginals were usually signed on the jackrail, of which the original is missing on this instrument, and therefore the maker cannot be determined with certainty. However, both this instrument, and the Mar virginal, are clearly built by members of what can be called the Lodewyk Theewes workshop tradition, and the decorators also share a common tradition. The AH shares two very distinctive features with the Theewes harpsichord. Firstly, the balance rail has been cut so that the area under all of the natural keys slopes from the front down to the rear, and under the accidentals from the rear down to the front. Secondly, there are a series of scribed lines on the baseboard of the AH which were used in the marking out and construction of the virginal. Although marked at the same time, the lines have been made with different tools - some made with a sharp knife and others with a blunt scriber. The same feature is also found on the soundboard of the Theewes harpsichord. As the general style of the instrument clearly looks back in design to the middle of the sixteenth century it is most likely that it was built in the early 1570s, or even the late 1560s. Many of the characteristics, in particular features such as the keywell flap only extending the width of the keyboard, suggest that the instrument is probably typical of those built from around 1550 onwards. The most likely candidate for making the instrument in the late 1560s or early 1570s is Lodewyk Theewes himself. In fact, it is difficult to make a case for any other maker.  
  
In terms of structural and musical integrity, the Mar virginal is the better preserved of the two examples. Its external dimensions are 1652 mm long, 505 mm wide, and 184 mm deep; or in Imperial measurements, 5 foot 5 inches long, 20 inches wide, and seven and a quarter inches high, not including the lid. The casework is of oak, with the exception of the spine which is of deal. The lid was originally coffered, but was flattened during a fairly severe decorative refurbishment. The lid decoration features three oval-shaped pictures surrounded by pale borders. The papers decorating the soundwell, keywell and jackrail are embossed, but clearly come from later large rectangular pieces which have been cut to fit. The jackrail is not original, probably dating from the nineteenth century, and shows no evidence of having ever had a cloth attached. The embossed papers are glued to this rail, confirming the later date of those pieces.   
  
There was originally a full-length keywell flap, as found in the later English virginals, and X-rays of this instrument show that parts of the original keywell flap have been used to cover the faceboards. Little of the keywell flap decoration can be determined, although two diamonds which are probably backgrounds to painted scenes can be discerned, each centred about eight inches from the ends. The soundwell and keywell mouldings are of oak, as are the original faceboard mouldings which are still in place and can be seen at the inner edge of the present faceboards. The last few letters of a Latin motto can be seen from the X-rays, as can a loose piece of inner faceboard moulding, thus confirming that the possibility that the faceboards were originally plain oak like those on the AH instrument can be excluded.  
  
The soundboard is sparsely decorated with flowers and birds. There is no border pattern, but several of the corners have painted arabesques. There are three rose holes in the soundboard, one positioned behind the left bridge, another behind the keyboard in front of the register and the third in between the right bridge and the wrestplank. Only the first rose hole has a rose which is probably original.   
  
The soundboard register is unique in English virginals. Typically, an English virginal register consists of a piece of leather glued to the top of the soundboard, with individual slots cut in it for the jacks to pass through. Wider slots are cut into the soundboard so that the jacks only come into contact with the leather. On the Mar virginal, the register consists of a strip of walnut with individual slots cut into it, resting on projections around the edge of a rectangular hole. This is similar to the method used for the roses and the competence of the work strongly supports its originality. Some soundboard deformation, due to the tension of the strings, has caused the register to rise along part of its back section, showing it was in place when the instrument was in playing order, and not an addition from the same period as the jackrail. Further confirmation that the register is original is that there are inked numbers "30" and "40" or the rear of the register, facing the spine of the instrument and counting from the treble. These numbers could only have been put on from the rear when the lid was not attached to the body. These numbers are in a hand consistent with the ink numbering on the jacks. The lower guide has the usual arrangement of leather on top of the wood, showing that the maker was certainly familiar with that method.  
  
The compass is that usually found in early English virginals, four chromatic octaves C – c’’’. The lowest key has, like the AH virginal, provision for two jacks and strings. The keylevers are of pine, with boxwood natural touchplates and accidentals of hardwood decorated with small sycamore and ebony pieces in a chequered pattern. The scaling-design note string length is 7 inches, implying that the instrument played at the lowest of what may be called the standard pitch levels found in England during this period, at about 403 Hz, which is one and a half semitones below modern pitch. The Mar probably dates from about 1580, and an examination shows that, although part of the Theewes workshop tradition, it is very unlikely to have been built by Theewes himself. Of the other makers in that tradition, perhaps the most likely candidate is Paul Defield, a maker who moved from Flanders to London with Theewes in 1568 before working with another maker, John James, and then ultimately setting up on his own.  
  
Although both the AH and Mar virginals were built by Flemish-born makers, they should be considered as wholly English in design and decoration. The soundboard barring is probably inherited from their Flemish learning, as can be seen when examining the barring of the AH and Mar virginals along with a Flemish virginal by Johannes Grouwels of around 1580. In all three instruments the barring is very similar. It has often being considered that the typical seventeenth century English virginal is derived from the instruments made by the Ruckers family, but an examination shows that they also have barring, as well as other design features, which is similar to those found in sixteenth-century Flemish examples.  
  
The instrument by Lodewyk Theewes will be discussed in detail by Malcolm Rose shortly, and so no extended discussion is needed here. It is, however, important to mention the disposition. The instrument has three registers, with two 8’ unisons and one 4’ octave. Each register has its own set of strings, unlike the Ruckers transposing instruments which had only two sets of strings, and the instrument has seven possible register combinations, not including any that may have additionally been available by means of brays which were on the 8’ bridge.  
  
The next surviving English-made instrument, a harpsichord built by John Hasard in 1622 also has three registers, although disposed differently, having two unison registers and a sub-octave stop. It also has a large 53 note compass. As the keyboard (as well as almost all of the soundboard) is missing it is not possible to know the original compass, although it is the belief of this author that it was GG, AA – c3, and that the instrument played at a pitch in which the unison registers were effectively a fifth above quire pitch, giving, in effect, a 1 x 10 2/3’ 2 x 5 1/3’ disposition. The case is very large, no doubt as a result of its low pitch and extended compass, being 2498 mm long, 837 mm wide, and 238 mm high – or in inches, 98½” long, 33” wide, and 9½” high. Unlike the decorative scheme as used on all of the other relevant instruments, the case is of oak which is lighter than the usual finish, and there is no evidence of embossed papers. The small section of remaining soundboard suggests that it was of cypress, a wood usually found in Italian instruments, and there is no evidence on it, or on the wrestplank veneer, of any painted decoration. The spine shows marks for the lid hinges, and the lid itself was probably plainly finished like the outside of the case. Its low pitch and extended bass compass suggests that it may have been built as an English equivalent of the Venetian quarto alla basso instruments, perhaps predominantly used for accompanying viols.  
  
In any case, it should be emphasised that both these harpsichords were built with three registers. There are very few, if any, examples from continental Europe at this time which had a similar disposition. An instrument such as the Theewes, often seen as a showcase example by a maker often referred to amongst his Flemish-born counterparts, may well be a typical example of the type of harpsichord that was frequently found in England during the last quarter of the sixteenth- and into the seventeenth century.   
  
Although virginals were probably much more common than harpsichords their actual numerical relationship may not be as distinct as often portrayed. An examination of the diary of Samuel Pepys, albeit written in the 1660s which is well after the period under discussion here, shows that harpsichords are mentioned much more often than virginals. It is possible that a variety of tonal resources was available to many composers and players who chose to have those instruments.   
  
The earliest dated virginals come from the years immediately preceding the Civil War, and show a change of style. The soundboards used a heavier barring scheme, the cases and string lengths were generally a little larger, and the decoration took on its common form with full sized lid and keywell flap paintings. The sound also changed. The timbre of the restored seventeenth century examples is quite different from that of their sixteenth-century counterparts. The AH instrument, as we shall hear at this conference, has a generally flute-like sound, and is different from the copy of the Mar which, as John Koster pointed out hearing it and the first Theewes copy together, sounds like the four-foot register of the Theewes played an octave lower. But all three have common characteristics which are absent in the later instruments suggesting that the sixteenth century English plucked keyboard instruments are as distinct to their seventeenth-century counterparts as the organs from the same periods are. A seventeenth century example may be the best compromise, but a compromise it certainly is.