

# WHAT DO WE REALLY KNOW ABOUT THE SNAPHAUNCE

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The subject I have chosen for today's lecture "What do we really know about the snaphaunce?" maybe surprised you. Should we not with this abundance of big, beautiful and instructive books on firearms have got more than enough knowledge of this subject? The answer is only to some extent affirmative. The well-informed arms collector knows a lot of different snaphaunce or snaplock types, which he can with more or less precision fix in time and place. But when it comes to the connection of forms, the history of development, the question of who influenced whom, we are more at a loss. How much do we know? What can we guess? And what is only the stuff copied from one textbook to another until it seems real facts? What I shall present to you now is not a solution of all these problems but only a sort of balance-sheet: What do we know, and what are still unsolved questions.

Let us start with a definition. Around 1500 — to say it very roughly — we meet two systems of mechanical ignition on firearms. One is the wheellock where the serrated edges of the wheel draw sparks from a pyrite held by the cock. The other is the snaphaunce or snaplock where the sparks are produced by striking the edge of a flintstone against a

steel. In both systems the sear which releases the mechanism is operating in the horizontal plane. The terminology is a little vague and different from one language to another. Here I shall use the term snaplock as the general term including all spark-striking locks with horizontal sear.

While we today have a reasonably narrowed limit as to the origin of the wheellock in time and place, we are in a much worse position with regard to the beginning of the snaplock, a situation connected with the fact that although the written proofs of its existence appear in the opening of the 16th century, the earliest known weapons with this lock are about 50 years later, and at first extremely scarce.

The earliest source which could be speaking of a snaplock is a story from 1515 where a young man in Konstanz (Germany) when visiting a girl played around with a pistol evidently in the meaning that it could not come off without a burning match. Nevertheless when he pulled the trigger a shot was fired that wounded the girl. The pistol in question could be a snaplock but probably was a wheellock. Two years later is the letter-patent of the emperor Maximilian I, banning the use of self-striking guns which ignite themselves. As "striking" is a very unaccurate description of what happens with a wheellock, it is probable that we here have mentioning of a snaplock. City regulations from the small Italian town Ferrara from 1522 and 1534 forbid the carrying of certain firearms which probably are snaplocks and in 1547 a corresponding law in Florence in describing the different locks speak of matchlock, wheellock and a lock with stone and steel. Here no doubt is left. The same is the case with a post in the arsenal accounts of Gripsholm castle in Sweden also 1547 mentioning a snaplock. That this is not accidental is seen from the fact that in the following year the term snaplock appears again and again the Swedish sources, even fabricated on the spot.

Not until about 10 years later do we meet the first still existing snaplock, in a gun in the Royal Armoury, Stockholm, probably one of a series of snaplock guns made in 1556 from Nuremberg barrels and locks of Swedish manufacture (Pic 1). And after this we shall proceed more than 20 years to find the next surviving snaplocks. Before we come to these guns, however, I should like to say a little on the origin of the construction.

Our starting-point is here the matchlock. In the middle of the 15th century guns were normally provided with a matchlock consisting of an S-shaped member, the serpentine, clefted in the fore-end to hold the match, the other end constituting the trigger or tiller. Sometimes in the 2nd half of the 15th century was developed the first igniting mechanism really deserving the designing lock, the snap-matchlock. It was a match-holder or cock activated by a spring and held back in cocked position by a sear appearing over the heel of the cock. By pressing the sear lever into the stock the sear would disappear leaving the cock free to snap down with its burning match or tinder into the pan. The gun in question, from about 1480-90, is in the Landeszeughaus in Graz in Austria.

I think we may with a very high degree of certainty maintain that from this snap-matchlock the snaplock proper was derived (Pic 2). It was simply the flint-and-steel striker, known for many centuries, made into a mechanical instrument. The flintstone was fitted into a small vice, a tool known to all blacksmiths, and held in a cocked position by a sear f, just as that on the snap-matchlock. When the sear was retracted, the vice which in future we will call the cock, would snap forward and its flint hit a steel, j on the drawing, which was held up by its own spring thus giving resistance enough to create sparks. The sparks would fall into the pan and ignite the priming powder there. This is the main principle of all snaplocks.

It has been maintained that there existed such a mechanical tinder-lighter which was then applied to fire-arms, just as it probably was in the case with the wheellock said to be an existing kind of tinder-lighter later used on guns. While I do believe this to be the case with the wheellock, I doubt it very much with the snaplock, as the oldest existing snap-lighters are all about 100 years later. Far more probable is it that parallel to the application of the wheellock on firearms the snaplock was developed from the snap-matchlock, as I just have described it. In several respects it was a better construction than the wheellock: Not only was it considerably simpler and thus cheaper to make; moreover it could be cocked without needing a key, as was the case with the wheellock.

If we are right in thinking the snaplock derived from the snap-matchlock, then we should expect it to have the same primitive swing-out pancover as the matchlock, and this also the case with the first snaplocks. Soon, however, an invention appears where steel and pancover are combined in one member, put together at a right angle. This construction, the battery, is characteristic of all Mediterranean snaplocks — and later on of the flintlock. As you will see in the following, the battery also does occur in the countries north of the Alps — it is mentioned in a Swedish account 1583 — but in several of the national types we shall still find the separate steel and pancover conserved for a longer time, thus in the Dutch and the Scottish snap-haunce.

I mentioned a little ago that we have literary sources speaking of snaplocks in 1547 in places so far apart as Florence and Stockholm. Where then did the snaplock begin, who invented it. The answer is negative: We don't know. If I should make a guess I would be most inclined to think that it happened just north of the Alps, while I have a feeling that the battery is an Italian invention, but we have not only no proofs, we have in fact hardly anything to build these theories on.

It is funny that so very few snaplock-weapons have survived in Germany, from where no doubt the system must have spread to all countries bordering Central Europe: to Scandinavia, the Netherlands, Britain and Scotland, and east to Russia. The oldest German snaplock is probably a snaplock-pistol in the Germanisches Museum, Nuremberg (Pic 3), made in Suhl, the center of German gunmaking through centuries (mark on lock-plate), and datable through the form of the stock and the decoration to about 1580. Observe the spring acting both as mainspring and in the other end as spring to the steel, and the cock with a loose upper jaw having a guide through a hole in the lower jaw. Further the pancover-system generally used in wheellocks, and a big shield, later on known as the fence, covering the flash from the pan. The double purpose spring we find again in all Scandinavian snaplocks, the fence and the wheellock-pancover in Dutch and Scots snaplocks.

An interesting German snaplock is found on a couple of early muskets with combined matchlock and snaplock. I have met at least 4 of them, all dated 1571 or 1572. First you see the inside of the lockplate, with the conventional serpentine with its tiller, and over this the mainspring acting on a toe on the tumbler, thus driving the cock forward when it is released by the sear. On the outside of the lockplate you see an interesting system of self-opening pancover. Normally the pancover is pressed open by the small spring but when priming-powder has been filled upon the pan, the pancover is drawn back and locked in this position by a notch on a lever moveable in the horizontal plane. When the cock moves forward, its toe will press the back-end of the lever against the lockplate thus freeing the pancover which then will click open. Note the cock where the loose upper-jaw is held by a screw inset from below and secured by a wingnut. There are no marks locating these muskets but may be the fact that they all come from different German arsenals could indicate a German origin. A couple of guns and pistols with corresponding locks have been called French by John Hayward. The system with the screw securing the jaw being inset from below we shall meet later as a typical detail in the Scottish snaphaunce.

After 1600 the snaplock practically disappears in Germany, the only exceptions being cases of revolvers or breechloaders where the special construction makes a snaplock desirable or necessary. This is the case with a group of snaplock-revolving guns by Wolf Stopler in Nurnberg and another group of revolving guns with dates between 1628 and 1634. Here the lockplate has the form of the contemporary West German wheellock. The cock is placed on the inside but having on the outside a small tumbler pressed downwards by the external mainspring. To the neck of the cock is attached a link which opens the pan when the cock descends.

I have already several times mentioned Scandinavian snaplocks, simply for the reason that we here meet this lock not only earlier but also much more often than in Germany. There are 3 distinct types of snaplocks in the north, different especially in the cocks. The Swedish lock where the back-end of the upper jaw is fitted into the body with a swallow-tail cut. A derivation is the Baltic snaplock where the upper jaw is formed like a leaf folding over the lower jaw. The Norwegian lock has an upper jaw with a guide through the lower jaw.

Here is first a Swedish gun with snaplock, from about 1575 (Pic 4). It has separate steel and pancover of swing-out pattern. Such a lock in Swedish was called "luggelas" meaning "putting lock," because you could put away the steel as a safety. It often had a combination spring used both for mainspring and steel-spring. From 1660 is another Swedish gun from the Wrangel Armoury at Skokloster (Pic 5). We still see the double-purpose spring, but the steel is of battery type. Such a lock was called "springelas" (springlock) because it would spring open when fired. Note the screw in the fore-end of the battery. Piroting around this screw the face of the steel could be turned away from the cock thus establishing a safety position.

A curious development happened to the separate steel. At first it got a little brim at its lower edge and this brim grew broader until it just as the battery, covered the pan entirely. This you see on a snaplock rifle, signed on the lock by Peter Froomen, Stockholm, and on the stock by Johan Christoph Wolff, also a Stockholm gun — or better stock-maker. The date is about 1680 (Pic 6).

In the woody borderland between Sweden and Denmark lived in the 17th century a tribe of peasants called the Gonge who were very clever with their hands. In summer they were farmers, in winter hunters and gunmakers. Their guns which normally had very fine smallbore rifle barrels, were fitted with snaplocks of a local pattern while the stocks were made in Swedish or Danish fashion according to the nationality of the purchaser. The Swedish version has a very triangular butt and a peculiar triggerguard (Pic 7), while the Danish version has a stock like contemporary Danish wheellock guns. The funny fin-like protuberance on top of the cock is typical "Gonge." It has a parallel in the cock of the Scottish snaphaunce. In both cases the idea is that the cock needs some kind of grip to make the cocking more easy. In form they are rather different and there is no reason to believe an influence from Scandinavia to Scotland or vice versa. The Norwegian snaplock has the usual double-purpose spring but — as you saw on the drawing, a cock differing from the Swedish, but very like the early German ones.

You may have wondered why so little has been said of Danish snaplocks. Although we have literary evidence of snaplocks in Denmark — the first an account of 100 guns with snaplocks made in Copenhagen 1565 - hardly any Danish snaplocks have survived. This gun is, I hope, a Danish snaplock (Pic 8). At least it has a typical Danish or very Northern German stock and a lock closely related to the other Scandinavian snaplocks. But I am not quite sure.

I can, however, show a later late kind of snaplock which is without doubt made in Denmark, by the court gunmaker of the Dukes of Gottorp, cousins of the Danish kings. Here the half-cock is effected by a hook, the so-called "dog-catch" while the full-cock is obtained by the sear pressing up in a hole in the body of the cock. The gun has by the way 8 loads superimposed in one barrel which is moveable inside the stock. Thus after having fired the first round the shooter turns the handle under the stock, which by a snail moves the barrel so much forward that the next touchhole will come in line with the pan.

I have already mentioned the Baltic snaplock with its leaf-shaped upper jaw. Here is an example, a rifle in Windsor Castle signed on the lockplate "Narwa" which as you know is a harbour town in Estonia. Note the rather unusual stock. This is, I believe, a Northern copy of the famous Teschinke rifles which so many Swedish officers brought back from the 30-years war. On the following slide is the lock of a rifle from about 1700, signed on the lock "W. Kypper A. Dorpat." This is a flintlock but it has kept the special upper jaw of the Baltic lock and the turning steel. My last slide of a Baltic snaplock shows a brassbarreled rifle without any signature (Pic 9). This is in the Tojhusmuseum but you will find the same rifle in many European collections. The very long and straight butt points to Eastern Europe, maybe Russia, and this is supported by the Imperial (Russian ?) eagle inlaid in horn on the butt.

We now come to the Dutch snaphaunce. Also here relatively few locks have survived, but I show you a typical marksman's rifle from Skokloster in Sweden. The barrel is one of those with square back half, a type often found in Antwerp, and the stock has on the underside a wooden block which enables the shooter to press the elbow into the hip. The lock has the mainspring on the inside, working on the toe of a tumbler, and the sear protrudes over the heel of the cock. Note the usual wheellock safety, the big fence and — a feature we have not yet met with — the buffer stopping the descent of the cock. The date of this gun is approx. 1620.

This lock is typical of what we call a Dutch snaphaunce, but I must admit that we — much more scarcely — could find another Dutch snaplock, more connected with the Spanish miquelet-lock. It occurs on some Dutch magazine-guns and pistols in the 1650-60's, made on the Kalthoff principle. The mainspring pressing under

the heel, the toe resting on the protruding sear and the ringformed screwhead all points to Spain.

From the Netherlands the Dutch snaphaunce seems to have spread to Britain. Here it is mentioned in archives sources at least in 1580. A very good example is a gun in the National Museum, Copenhagen; it has the date 1584 on the stock. As you see the lock is in principle as the Dutch, only with a more tiny buffer and a square fence at the pan. In other cases, for example the English snaphaunce pistols in Moscow, the fence is round. In the beginning of the 17th century another snaplock develops in England, with full cock over the heel of the cock and half-cock notch on the tumbler. This lock, which always has a battery (steel and pan covers in one) no doubt was influenced by the flintlock proper. The same is the case with the English dog lock with halfcock by the hook engaging into the back of the cock and full-cock on the tumbler. Later on this develops into a model with both half and full-cock on the tumbler, the hook being only a safety device. About 1660 both these English locks make way to the flintlock proper.

Closely connected with the Dutch and the English snaphaunce is the Scottish snaphaunce. We know that in Scotland matchlock and wheellock guns were used in the second half of the 16th century while we have no concise proofs of the snaphaunce until 1598 when we find the oldest snaphaunce weapon, a pistol in the Dresden Armoury. The main features of the Scottish lock are the following: the mainspring is inside and the cock is engaged by the nose of the sear over the heel of the cock. There is a buffer like on English and Dutch types. Attached to the tumbler is a small link pushing away the wheellock type pancover when the cock descends, also a feature found in English and Dutch locks. Special Scottish details are: 1) the hexagonal fence, almost always carrying a date, 2) the screw drawing together the jaws and coming from below (this feature you remember I mentioned a little ago in connection with a locktype which might be French, or German), 3) a sort of panache floating backwards from the neck of the cock. This, no doubt, is a parallel to the fin-like protuberance on the upper jaw of the Gonge-snaplocks of the Danish-Swedish borderland.

Second in age to the Dresden pistol is a charming brace of Scottish pistols in my own museum, dated both on the barrels and the fence of the lock 1602. Note that they — as all Scots pistols — are left and righthanded (Pic 10). Scottish long guns are extremely scarce. With very few exceptions they all belong to the Countess of Seafield. Here is the lock of a gun by William Smith made for one of her ancestors. The round fence with the date - 1684 — placed vertically is typical of the 2nd half of the 17th century.

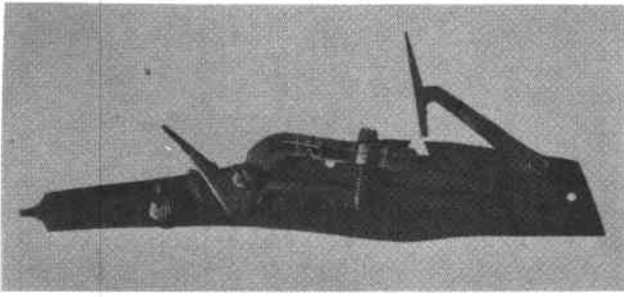
In Russia we meet several different types of snaplock. Oldest is a type (Pic 11) which maybe goes back on the early German type. The spring — however — is divided in one separate mainspring and another to the steel. The cock is rather like the Norwegian one — which also was derived from the German, but has almost always a grip attached to the upper jaw. Behind the cock is a hooked dog, a feature pointing to England, but also found in a German type. But then comes a Mediteranean feature: the mainspring works from above down on the toe of the cock. as on the Roman lock! One more detail pointing the same way is the upper end of the mainspring which rests against the pan. So, as you see, the old Russian snaplock seems to be a mixture of North and South. But there is another explanation: that may be the Russian lock goes back to a very early lock from which both what we call the German and the Mediteranean lock have developed.

A later Russian snaphaunce is of undoubtedly Dutch origin (Pic 12). It has all the features we should expect: the internal mainspring acting on the tumbler, the connecting rod opening the pancover, the buffer in front of the cock, etc. A special Russian feature is the perforated fence, taken over from the early Russian snaplock. This lock is found on a rifle in my museum. It was used by the Polish Colonel Piasczinski in the battle of Nyborg 1659 but is probably 10 years older.

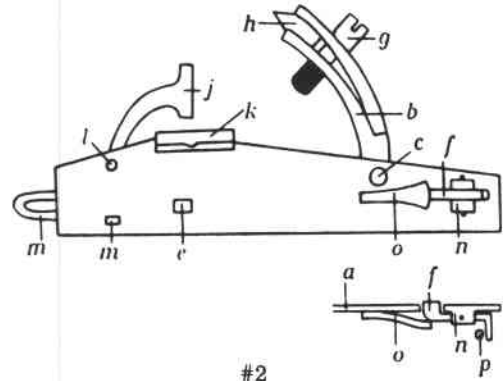
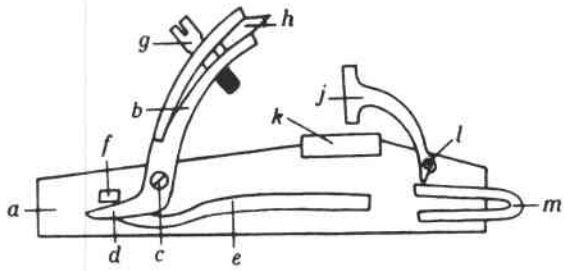
As I said before, all Mediteranean snaplocks have battery, that is the so-called Florentine snaplock "alla fiorentina." Here is a double lock in Glasgow, for a gun with two superimposed loads, with two cocks and separate steels and pancovers. The mainsprings are inside, full-cock is made by the sear engaging in a notch in the cock. A peculiar detail is the buffer created by a prolongation of the pan. The Florentine snaplock is probably derived from the Dutch snaplock. There is a very small possibility of its going back to an Italian snaplock before the invention of the battery, but the other solution is much more probable, also supported by the fact that Brescian gunmakers about 1600 produced lots of wheellocks of Dutch type, called "alla fiammanga," that is "in the Flemish style."

Back to the Mediteranean snaplock. We have two main types (Pic 13): 1) the Roman lock "alla romana" with mainspring pressing downwards on the toe of the cock, halfcock under the toe and full-cock over the heel, and 2) the Spanish lock "alla catalana," commonly known as the "Miquelet" lock, a term which only appeared in the middle of the 19th century. The lock "alla catalana" has a mainspring pressing under the heel, and a toe resting on the nose of the half- and full-cock sear.

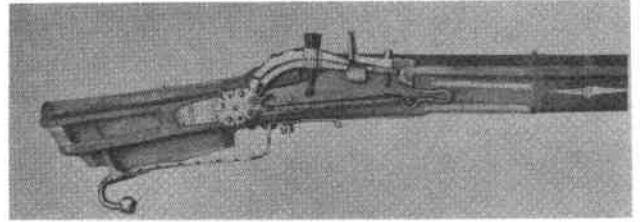
Both these forms, with both half- and full-cock, look less primitive than the early German lock. Do they have now lost common ancestor? We again must admit that we don't know.



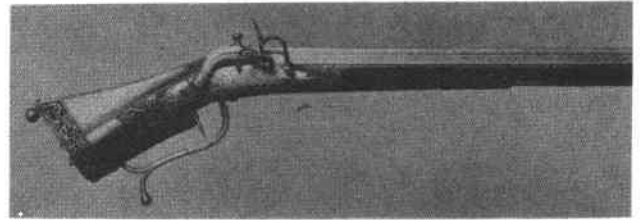
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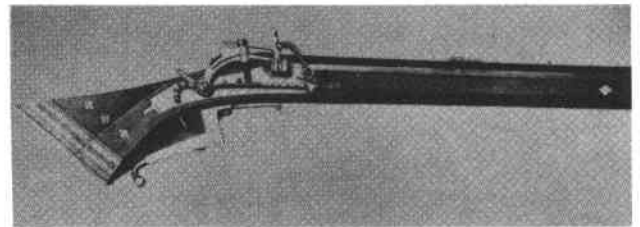
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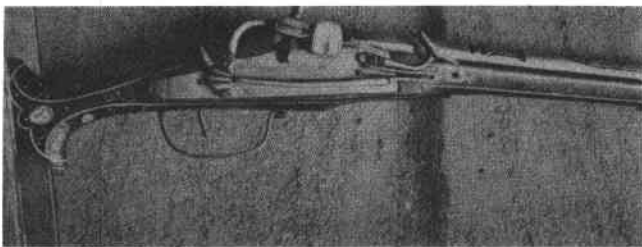
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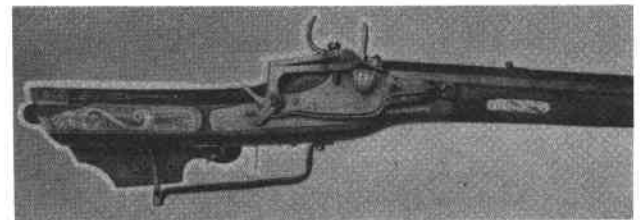
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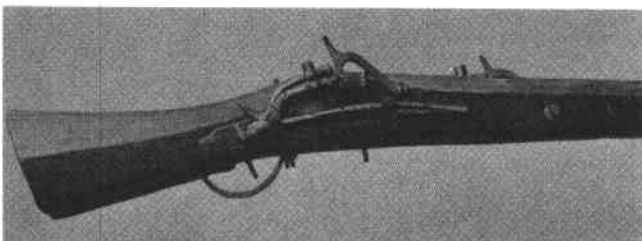
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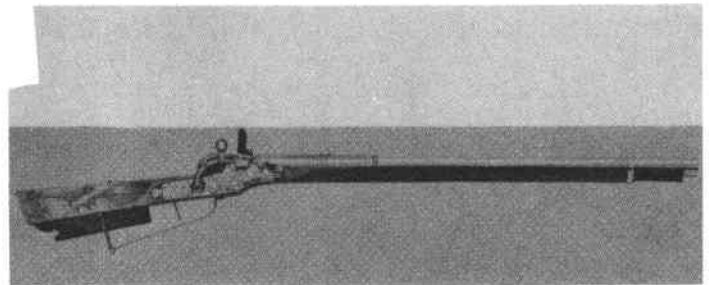
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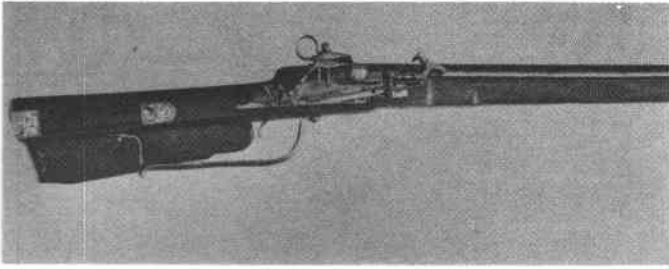


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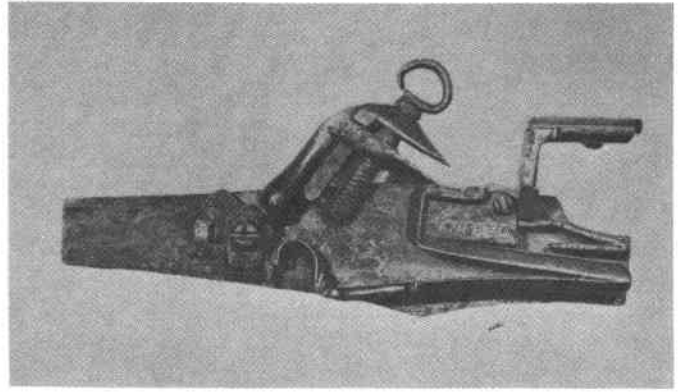


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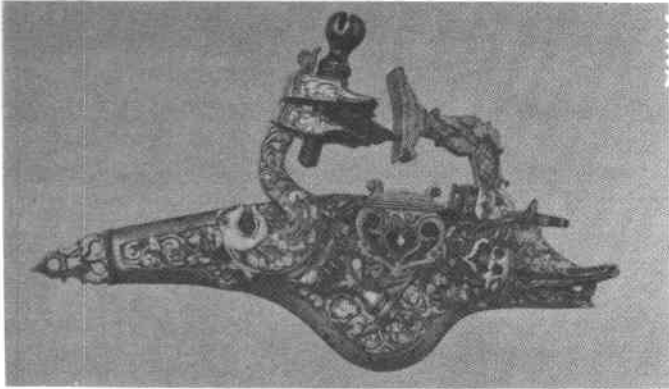
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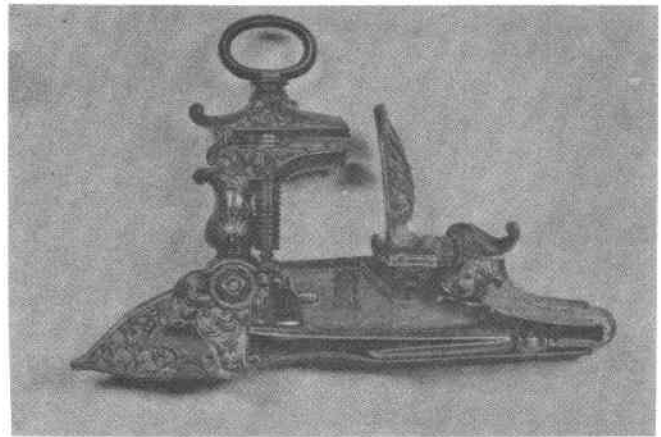
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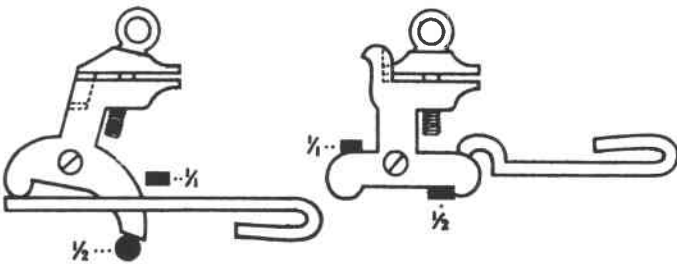
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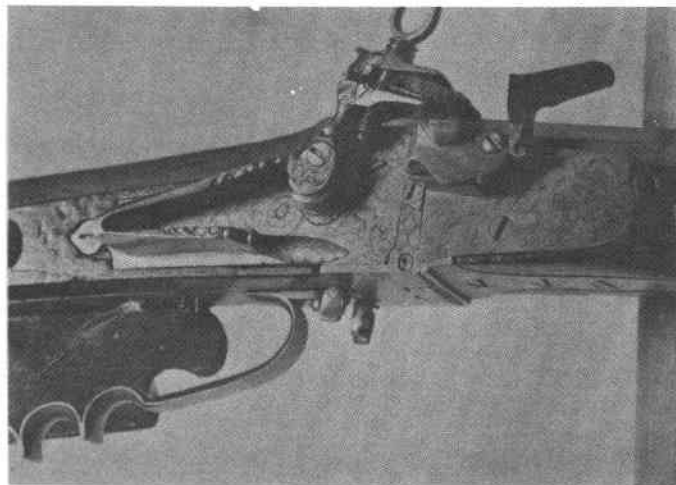
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Between the literary source of the Italian snaplock from 1547 and the oldest surviving lock then is a span of about 40 years. As the oldest lock I consider a double lock, wheel and snaplock, in the Artillery Museum in Torino. It is a lock "alla romana" but with half-cock established by a dog-catch. Note that the mainspring rests against the pan, as we saw on the early Russian snaplock. When the cock is bent from half-cock to full-cock, the dog-catch will fall backwards and the nose of the sear protrude over the heel of the cock. Note the battery. This is in my opinion the very first example of this important invention. Augustino Gaibi would date this lock in the first half of the 16th century. The wheellock, however, of a type often but without any reason called Portuguese, can hardly be older than 1570-80. So I should date this first lock with battery to about 1580, and I see to my great satisfaction that Claude Blair has come to the same conclusion. Another early Roman lock, probably actually produced in Rome, is in the Terenzi Collection (Pic 14).

The Roman lock is also found in Spain although only rarely. One of the oldest examples is a brace of pistols made in Ripoll in North Spain, now in the Tojhusmuseum. The great length of the barrels (60 cm) supports a date very early in the 17th century. The face that is: the steel of the battery is here striated, probably because pyrite was used instead of flintstone.

During the 18th century the Roman lock more and more made way to the flintlock in North Italy and to the Spanish snaplock in the South. A late example of a lock "alla romana" is this gun by Cosimo Menghini in Florence made just before the end of the century for the Spanish King Charles IV who succeeded to the throne in 1788. It is now in Copenhagen.

In Spain we find evidence of a snaplock just before 1580 and many sources in the 2 first decades of the 17th century. Apart from a very peculiar lance-and-gun in the Real Armeria in Madrid which I have not seen myself the first Spanish locks alla catalana are from about 1625. The Real Armeria has such locks from that time made by 3 different gunmakers, so evidently it was quite common. There exists, however, an Italian lock found in the earth in Brescia "alla catalana" which is said to be older and maybe could indicate that the Spanish lock had an Italian origin. This lock, in the collection of Count Gallina in Milano, has the cock with the crescent-shaped toe like the later miquelet, only full-cock and a mainspring acting on the heel from below but placed behind the cock. General Gaibi, the expert on Italian firearms, has dated this about 1550 which must be far too early, but I think we could agree to about 1630-40 which will not make it earlier than the first Spanish snaplocks.

Already the first Spanish locks "alla catalana" have the peculiar wasp-waisted lockplate with no more space than absolutely necessary to accommodate the various parts. This fashion still goes on up till the end of the snaplock-era. The upper pistol here has such a miquelet-lock. It is dated Lisboa 1748 and is thus one of the very rare old Portuguese firearms.

When Spain came under French political influence with the accession of the Bourbons on the Spanish throne in 1701, a lock-type was developed which was clearly influenced by the French flintlock. In this lock called "llave alla moda" the mainspring is placed inside the lockplate and acting against the tumbler. A double sear provides half-cock on the breast of the cock and full-cock over the heel. Very often the tow projections on the cock are difficult to recognize being part of the decoration.

On the other hand, when Spain gained a foothold in South Italy, with the crownprince Charles, III residing in Naples, the alla catalana soon acquired the foremost position in the local gunmaking. I show here a very charming pistol by famous Michele Battista, the leading gunmaker in Naples, about 1776 (Pic 15). This special development of the catalana-lock was called "a las tres modas," that is: in the three fashions, because it had elements from the old catalana, the Roman lock and the flintlock. It is my learned friend Dr. Lavin who has found out this explanation of the hitherto obscure name.

The typical "alla catalana" lock not only held the position as the most popular lock on Spanish firearms far up in the 19th century, thus also with percussion ignition, but it also spread along the North African coast and reached as far as the Balcans and Black Sea Area. Even some few probably late Russian snaplocks seem to exist. The guns on this slide have all been found by a Danish engineer travelling in the Russian territories East of the Caspian Sea in the last quarter of the 19th century.

In Europe North of the Alps neither the Spanish nor the Roman snaplock ever gained foothold. The very few examples are either specially ordered by Mediterranean customers or used in breechloaders where they could solve individual difficulties. (Pic 16)

Let us try to resume: There is at least in the middle of the 16th century a snaplock in Germany, with separate steel and pancover. From this are developed the Scandinavian snaplocks, eventually differing in details as the form of the cock. Further the Dutch snaphaunce and the type with screw from below through the jaws and a winged nut. It was this type, Hayward called French. I should prefer thinking it German,

maybe from the borderland to France. From Sweden goes a line through the Baltic lock to Russia where earlier a locktype occurs which is generally thought of German origin but has traits of the Roman lock. From the Dutch develops the eldest English snaphaunce and the Scottish which also receives influence from England. Both the English and the Dutch snaphaunce are reproduced with minor variations in Russia in the 17th century. Another influence of the Dutch snaphaunce we probably find in the Florentine lock, the only snaplock South of the Alps without battery.

No Italian snaplock of an eventual pre-battery era is known, if it has ever existed. But we have the two main types, the Roman with mainspring pressing from above on the toe, and the Catalana pressing from below on the heel. The Roman lock no doubt spreads to Ripoll in North Spain, the Spanish to South Italy, Portugal, North Africa probably even South Russia. There are some details pointing also to an Italian origin of the Spanish snaplock but no real evidence.

Finally I should mention the probability of a common origin of the snaplocks North and South of the Alps. In my opinion the countries North of the Alps propose the most acceptable solution, but it is far from safe. On the other hand it seems almost proven that the battery is an Italian invention.

The reason for our uncertainty lies in the fact that the surviving material is so scarce and almost everywhere about half a century behind the literary sources. And worst of all: We have — I am afraid — hardly any chance to find more or older snaplocks than these we know today.