

Chapter 2

The Fortress of Fenestrelle in Detail

THE FIRST FORTRESS

In 1693, on the advice of General Nicolas Catinat, Louis XIV of France (the "Sun King") ordered that a fortress be built where the upper Chisone valley narrows, just below the village of Fenestrelle. The Pragelato Valley, as it was then called, was French territory. For centuries it been literally a thorn in the flesh of Piedmont. Shaped like a crow's beak and thrust into the Savoyan lands which surrounded it on three sides, it had gained the epithet "le Bec Dauphin", from the period when this territory was the southernmost extension of the Dauphinate, long before it was ceded to France in 1349 by the last of the Dauphins of Vienne. A curiously shaped rocky promontory near Meano delimited the border, a rock which is still today called the "Bec Dauphin".

While it was clear that the main purpose of this new fort was to thwart the expansionist ideas of the Savoy Dukes, Louis XIV declared that its objective was to keep the "mutinous bearded heretics" (i.e. the Valdesse protestants) under control. Its original name "Fort du Fenestrelle" soon gave way to the more colourful "Fort Mutin", the Mutineers Fort.

The site chosen by its architect, De Richerand, was just across the valley from the present day Fortress, but despite its imposing size, it was heavily criticised by the great Sébastien Le Prêtre, Lord of Vauban, the French King's First Engineer, when he came to inspect it in the year 1700. His expert eye immediately identified its principal weakness - its vulnerability to attack from the surrounding heights, since although it was a well-structured pentagon, the form best-suited to defence, it lay in a gently-sloping hollow. While this might have been acceptable in a lowland site, it was courting disaster in a mountainous area. Vauban scathingly commented that if this fortress had not

already cost a fortune to build, and that if the need for one in the upper valley had not been imperative, he would have ordered its demolition there and then! He ordered the reinforcement of the perimeter and the main buildings and the construction of a series of redoubts in strategic positions to forestall any attack from the heights above, but left with grave misgivings. Due to their cost, these improvements were only partially carried out. Vauban's criticism must have echoed in Louis' ears some years later when the fort was conquered by Savoyan forces under Vittorio Amedeo II and General Rhebinder in August 1708. The Duke first retook Exilles then crossed the Finestre Pass to besiege Fort Mutin. A large French relief force under Mareschal De Villars found its every move thwarted by energetic Piedmontese counter-manoevres, relegating it to the role of an impotent and reluctant spectator of the systematic demolition of Mutin by Savoyan siege cannons until finally the demoralized defenders surrendered. Details of the siege can be found in the chapter on Fort Mutin.

The Treaty of Utrecht in 1713 saw reciprocal territorial exchanges between Piedmont and France, establishing the border on the alpine watershed at Montginèvre, with the High Chisone Valley and Fort Mutin becoming part of the newly-created "Kingdom of Sicily". With Bourbon support, Vittorio Amedeo gladly surrendered his ducal coronet for a King's crown.

In the 1720's, having already "traded" Sicily for Sardinia, Vittorio Amedeo began to consolidate his kingdom. Worried by the inadequate defensive system represented by the patched-up Fort Mutin, he challenged Ignazio Bertola, his First Engineer, to design an impregnable fortification at Fenestrelle. The result became the largest single military construction in the world after the Great Wall of China. It also fulfilled its primary objective - it was never taken in battle.

In giving his assent to this pharaonic project, something which cost the kingdom almost one third of its income for the next 50 years, Vittorio Amedeo had much more than just its obvious military function in mind - first it had to be an expression of the new King's statement to the world - the need to demonstrate the vigour and potential of his fledgling kingdom by means of an imposing construction (a feature common to many nations, even today); the second is more prosaic but probably of greater fundamental importance - to provide work, and thus engender loyalty among those of the valley who for 600 years had considered themselves French. Bringing work to a depressed area is, of course, still one of today's ploys to stimulate loyalty, albeit merely political rather than anything more substantial.

The new fortified complex, conceived as a barrier across the Chisone valley, was situated on its left flank, and originally comprised three forts, (the San Carlo, Tre Denti and Delle Valli), two Redoubts (Santa Barbara and Delle Porte) and five Batteries (San Carlo, Beato Amedeo, Sant'Ignazio, Dello Scoglio and Ospedale). The Delle Valli Fort was in turn composed of three independent Redoubts - Belvedere, Sant'Antonio and Sant'Elmo.



The Fortress of Fenestrelle

The Carlo Alberto Redoubt was a much later construction, not part of the original design.

Communication between Fort San Carlo and everything above it was by means of a prodigious covered stairway nearly two and a half kilometres in length, its staggering 3996 steps taking it through approximately 580 metres of vertical height. This was essentially the main artery of the fortress, linking all its elements together, allowing the movement of men and materiel between the Forts, the Batteries and the Redoubts in any weather and in complete security from enemy fire thanks to its cannon-ball proof construction. Illuminated and ventilated by tall narrow slots every few metres on the "safe", inner side, the thousands of tiny stalactites caused by the seepage of rainwater through its calcareous superstructure, add a mysterious fascination to an already dramatic and almost unbelievably vast feat of engineering (by comparison, the Empire State Building is less than two-thirds as high, at 335 metres, while the Eiffel Tower is a "mere" 300 metres in height - to the very top!

The first "Instructions for the work required to build the fortifications of Fenestrelle" are dated the 8th of October 1727, signed by Ignazio Bertola, and list under 96 separate headings all the various aspects involved and how each task should be performed. They specify in enormous detail not merely the duties of the workmen and the types and quantities of their tasks but also the quality and the origin of the material to be employed. A series of such instructions were emanated at various times during the construction of the complex.

Work began in 1728, starting from the summit of Mount Pinaia (an extension of Mount Orsiera) with the construction of the three upper Redoubts (Sant'Elmo, Sant'Antonio and Belvedere) which together make up the Delle Valli Fort. Descending towards the valley as work progressed, the old "Trois Dents" redoubt built by Catinat was the first to be integrated into the new structure, and was given the name of Fort Tre Denti.

Vittorio Amedeo II, the instigator of the work, saw only a small part completed. He

abdicated in 1730 in favour of his son, Carlo Emanuele III.

The year 1731 saw the beginning of the "lower fort" (Fort San Carlo), the largest of all and most important of the entire complex.

FORT SAN CARLO

Fort San Carlo was designed to impress visitors. It was meant to convey the impression of strength, power, determination, and fortitude, everything that the new Kingdom was trying to display to the world. This was an expensive fortress to build, typified by graceful buildings. The Governor's Palace, despite its massiveness, is a tasteful edifice which a nobleman could have admired. The Officers' Pavilion, built into an incredible slope, displays five of its six stories to the rear but only three to the front. All its 44 rooms have fireplaces. The great bulwarks stretching up the hillside are all semi-independent little forts which once housed the great cannon that would keep French armies out of Piedmont until Napoleon's time. The genteel clock tower, the seemingly endless covered stairway and the triple set of barracks for the troops, all visible at once from the parade square must have produced the desired effect, as would the appearance of the intermediate fort, the Tre Denti, some 200 metres higher up the hill.



Fort San Carlo from the South-East

The fort is completed by the battlements, the powder magazine of Sant'Ignazio, the Main or Royal Gate and a host of other buildings used as deposits for munitions and artillery pieces, munitions loading houses, workshops for the maintenance crews, guards quarters, the

infirmary, storehouses for hay, straw, firewood, rations for the troops etc.

THE GOVERNOR'S PALACE

This edifice is rectangular in plan, stands three stories high with one underground floor and has a porticoed entrance overstood by a loggia; its severe frontage is graced by two magnificent doorways, splendid cornices and finely carved decorations in grey stone.



The Governor's Palace

Structurally massive, it boasts double load-bearing walls more than two and a half metres thick, bomb-proof barrel and pavilion vaults with robust iron grilles some 4 cm thick at the ground floor windows. Inside there are many fine rooms - all with stone fireplaces - amongst which two stand out for importance, both located on the "noble floor" (the 1st upper floor): the first is the "Quadrato Militare", that is the office of the Governor (originally with the rank of General, and successively with the rank of Colonel) who was in command of the entire fortress. It was from here that he issued the orders which were communicated to all parts of the fortress by means of optical semaphores or by carrier pigeon. The other important room is his personal dining room, with fireplace, washing facilities, a small kitchen, an adjacent store-room for food and provisions, and once upon a time, with the utensils necessary for the preparation and consumption of the meals for the Governor and a few other high-ranking officers.

The uppermost, mansarded floor was reserved as living quarters for the Governor and his family. The Governor was the only officer

accorded this possibly doubtful privilege. His wife and daughters (if any) were normally the only females in the fort.

Today, this beautiful building has been extensively restored, and is being readied for use as a hostel for young visitors.

THE OFFICERS' PAVILION

Constructed between 1780 and 1789, to the design of Count Lorenzo Bernardino Pinto, and on the instructions of Vittorio Amedeo III, with the function of state prison and military confinement for officers in mind, this is historically the most significant building within the fortress.

A truly robust edifice, with stone walls from two to three metres thick and vaulted brick ceilings, it is beautified on the Parade Ground side by a splendid stone doorway. To the front it stands three stories high, while to the rear, due to the steep slope upon which it is built, 5 stories are visible above ground. In addition it has an artfully illuminated underground floor in which an immense double cistern supplies water through a brick-built well.

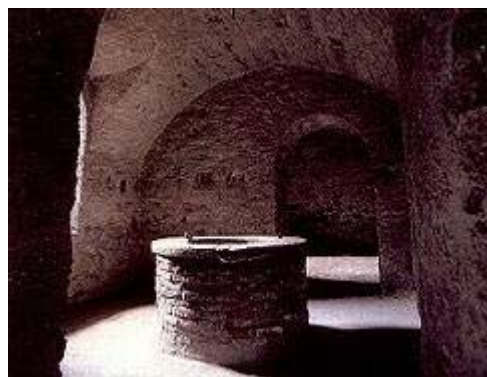


The Officers' Pavilion

Its 44 rooms on the three upper floors all have fireplaces, although only a small number of them were used on a regular basis as quarters for the garrison officers. The others mainly "hosted" important prisoners and military officers under arrest. The below-ground floors were given over to the kitchens and the store-rooms for Fort San Carlo. Every fort, in fact,

had its own independent kitchen and store-rooms, and was able to support itself autonomously in the event of siege. Two large reflecting ovens for bread making can still be found, both of which are in good state of conservation (and perfectly functional!), as well as two built-in cauldrons for the preparation of rations. It is, however doubtful that they were in fact ever used while the fortress was operational. Supplies were normally brought from the nearby villages.

In the cellar, a fine brick well with a stone cap-ring served to draw water from the underground cistern below. The cistern consists of two large communicating chambers, waterproofed with the finest lime, which fills with pure water right to the vaulted ceiling where the overflow outlet is located. This large reserve of water, estimated as being more than 100,000 litres, was only for Fort San Carlo, each of the other forts having their own water supply.



The well in the cellar of the Officers' Pavilion

Recently, the cistern was cleaned out, removing all the material (stones, bricks, wood, rubbish etc.) that had found its way in during the years of abandonment, and to our great surprise the huge stone cap-ring that crowned the upper part of the well was found. This has now been restored to its original position.

It is sad to say that the role of state prison characterized the Fenestrellian fortress for many years. The Officers' Pavilion in particular and Fort San Carlo in general had the function of State Prison and Military Correction Institute (as can still be seen today on the walls of the entrance hall) for officers

under arrest up just after the First World War. Both Napoleon and the Savoyans made ample use of its facilities as a "maximum security" prison, and the fortress was held in extreme dread, not merely for the imprisonment itself, but the harsh conditions which accompanied it.

Personal liberties were non-existent. A series of hard governors took pleasure in extracting the maximum suffering from their charges, while remaining within the confines of the rules. These rules were strictly obeyed to the letter, mercilessly, without regard for any sentiment or sympathy for the innocent motivation for the request. A best-selling book of the period ("Picciola") recounts the tale of a prisoner who cared for a small plant growing in a crack and the furore caused by his request for more space for its roots as it grew.

To use the words of the writer Edmondo De Amicis, "soldiers and Officers of all ages and Regiments were frequently sent *on vacation* to Fenestrelle to meditate on the rules of discipline".

Various illustrious historic and cultural personages were imprisoned in the cells of this building. François de Maistre wrote his masterpiece "Un Voyage Autour de ma Chambre" (A Journey around my Room) at Fenestrelle; another writer, Jean Xavier Saintine, located the events of his novel in the fortress; Stendhal in "The Certosa of Parma" cites the fortress as one of the most feared of all the Savoyan prisons.



The room in which Cardinal Pacca was imprisoned for nearly four years

From 1809 to 1813, the most illustrious of its "guests", Cardinal Bartolomeo Pacca, Secretary to Pope Pio VII, was imprisoned there, together with other eminent prelates.

His cell is the only one which today has frescoed walls, however those are Sabaudian works from the post-Napoleonic period.



The fresco of the Savoyan eagle on the ceiling

Underlining the sentiments of the post-Napoleonic period, the eagle is portrayed actively shredding the fronds of France and ripping up "le tricolore". As a final insult, its tail end points North - directly towards France !

Pacca's memoirs, written in 1830, describe how tragic and full of suffering confinement in Fenestrelle really was, even for those of rank, whose treatment was immeasurably better than that accorded to the common prisoners

During the Restoration, and in fact throughout the 1800's, many other significant personages were housed in these cells, although in some cases, fortunately for them, only for brief periods: Prince Carlo Emanuele Dal Pozzo della Cisterna, Giuseppe Bersani (who some historians indicate as the illegitimate son of Carlo Felice), various liberals of the "Giovine Italia" movement, Mons. Luigi Franzoni, Archbishop of Torino, following the promulgation by the Subalpine parliament of the Siccardi laws regarding the ecclesiastical reforms to which he was opposed; six of Garibaldi's officers after the Battle of Aspromonte and some Papal soldiers following the capture of the Porta Pia in Rome. Gioberti was also held here before he

was able to have his punishment commuted to exile.

THE COVERED STAIRCASE

With its 3996 steps, this incredible cyclopean staircase is one of the most unusual features of the fortress. It is not the only one of this type which exists, the Fortress of Bard having a much shorter version (530 steps), but this one was constructed from the outset as the main logistic communications way for the entire fortress. For many years it was the only means of moving men and materiel between the various sectors of the fortress. Amongst other things, it also served to hide the movements of the garrison and their supplies from enemy view.



Part of the Covered Staircase

Approximately 2.10 meters wide and 2.35 meters high with walls of over 2 meters thick, illuminated by narrow slits which also serve for ventilation, it climbs 580 metres in nearly 3 kilometres within an artificial barrel-vaulted tunnel. Covered with a double layer of stone roofing slabs, it connects one fort with another and all the sections between each other. It was a strategic means of communication, particularly in times of inclement weather or enemy attack, since despite the steepness of some of the slopes, it could be traversed by mules as well as by large loads which were either towed up or restrained on the way down by ropes through large rings fixed to the walls.

Five double drawbridges (called "trabocchetti") could cut off further access and isolate each single tract. When necessary,

either of the two mobile parts, hinged to their fixed center part, could be raised vertically by means of chains running through pulleys in the roof, revealing a water-filled ditch, some 5 to 6 metres deep.

From below the Tre Denti fort, a second stairway of nearly 300 steps runs parallel to the Covered Staircase, forming an alternative to the external route to the fort. It is illuminated only by small openings high in the walls. The main staircase provides access to a terrace a short distance above the Devil's Garret, where the "Royal" or Open Stairway begins. This is a wonderful panoramic route of "only" 2500 steps, running essentially parallel to the Covered Staircase up the slopes of Mount Pinaia, linking the remaining Batteries and their Redoubts with the Delle Valli fort. It is said that King Carlo Emanuele preferred the external stairway to the internal one, hence the name attributed to it.



Ascending the Royal Stairway

Volunteers have cleared away the thick vegetation accumulated over the last 50 years, which had rendered it otherwise unuseable. Regular "corvées" of work still continue, to remove undergrowth, tree roots etc, generally improving it from a safety aspect.

THE CHURCH

The church is the only "genteel" building in the fortress: its decoration is however, restrained, without excessive ornamentation, blending in well with the general austerity of

the other architecture. Unfortunately, at present, little is known about the church. We have very limited information, none of which can be considered precise nor reliable about who designed it, the date or the length of time of the construction, not even its exact usage through the centuries.



The Church

It was most likely built in the last quarter of the 1800's, although has also been attributed to the military architect Carlo Andrea Rana by some scholars (for example Brayda and Contino), who state that they see the same architectural elements and a similar style in the facade of this church to those of his other works in Piedmont. (In 1773 Rana had drawn up an ambitious plan for reinforcements, works which were never carried out, to be built on the mountainside between the Santa Barbara and Delle Porte Redoubts.)

By the Second World War, it had become a storehouse and magazine for bombs, munitions, grenades and detonators, as testified by inscriptions on the internal walls. Documents dated 1917 show that by then the church had already been deconsecrated.

The facade of the church is characterized by a central corpus, slightly protruding with respect to the lateral elements, a stone pediment on which rest six pilasters (four in the corpus - in pairs on each side of the main entrance - and two, one on each side, in the lateral extremities of the facade), and by a horizontal moulding between the upper and lower windows and between the circular rose window and the entrance. Unfortunately, due to either having collapsed or been stolen, the carved stone arch originally over the entrance

is now missing. The trabeation is simple, and in the centre is surmounted by a triangular timpanum which houses a semicircular window.

Internally, it has three naves, the lateral ones are vaulted, while this was never completed over the central nave. Of its former furnishings only two carved wooden shelves which once supported the pulpit of the organ remain.

A false ceiling in wood, at the same height as the lateral vaulting divides this central space into two floors. The upper floor could be reached by a wooden stairway from the old sacristy alongside the presbytery. Above the apse, the lovely brick-built dome with its stone arches still exists today.

The roofing of stone slabs was refurbished about ten years ago, and from then on, the interior is no longer exposed to the elements.

Recently, consolidation of the structure of the walls and the creation of suitable new flooring has been undertaken: these works, amongst other things necessary for the conservation of the building, now finally allow its use as a prestigious site for cultural events such as exhibitions, concerts, theatrical presentations, conferences etc.

During the 20th Century, the underground floor was divided up into tiny prison cells. To one side of this still exists a small courtyard, the airing yard, surrounded by high walls and furnished with stone benches where prisoners were taken to enjoy their daily "hour of air".

Running along one of the external support walls of the church there is a stone-built tunnel, 25 meters long which leads to the morgue, a windowless underground chamber where the corpses of dead defenders were thrown during a seige to prevent outbreaks of disease until there would be time to decently bury them.

THE MILITARY BARRACKS

These are three long buildings, each 11 metres wide and three floors high, in parallel one behind the other on a steep slope, their facades each distinguished by a gracious balcony in grey stone.



The Military Barracks

Originally built to house the garrison soldiers, the ground floors became prison cells for deserters and criminals, becoming known as "les Forçats", from the 12 hours a day of forced labour, mainly stone breaking, which was their lot.

The internal layout was typical of an army barracks, with wide symmetrical dormitories reached by flights of steps at each end. The ground floor was particularly inhospitable, being damp and unhealthy due to being completely interred in the mountainside at the rear. The upper floorings (in some places completely stolen after the war) consisted of wooden planks covered with stone flags, the whole supported by squared-off larch beams.

The ceiling was barrel-vaulted brickwork, above which were directly cemented two layers of "lose" or stone roofing slabs. The floors were sustained by great larch beams with a similar double layer of stone and wooden planking. This can be clearly seen inside the second Barracks, where damage to the ceiling of the ground floor has exposed this stratification. Each upper floor had, on its eastern side, some "very useful" latrines on the southern side. Curiously, exactly like those in the Officers Pavilion, these were open, and set side by side in pairs about one metre apart. The two drain pipes, refurbished during the 1920's, serving the latrines in the second barracks can be easily seen.

The ground floor of each of the barracks consisted of two large cells for common prisoners, up to around 400 of them in each cell. Conditions were unimaginable. The stone floors were covered with straw and manure as a concession to warmth. The uphill wall, set against the mountain, was

perpetually wet with humidity. Drainage holes at the base of the wall produced small rivers when it rained. Toilet facilities within were non-existent. Medical treatment was sporadic. The ball and chain was standard. At night, the prisoners were attached to a common chain set into a large stone block. Barred loopholes at the entrance allowed the guards to keep an eye on their charges. Sentences were strange (and often incredibly long) in today's terms - 3 years for stealing a pair of shoes, 20 years for insulting the King, 15 years for desertion, 5 years for uxoricide and for vagabondage, 10 years for insubordination, and only the exceptionally strong managed to survive to be released. Being sent to Fenestrelle was akin to being condemned to death. The survival rate was modest when the sentence exceeded 5 years. Detailed records of just how many prisoners never left Fenestrelle do not exist. Some historians suggest that about 600 men died here. Others place the figure much higher, at more than 10,000, alleging that thousands of deported Bourbon soldiers from Sicily were never seen again following the Piedmontese invasion of the South under Garibaldi which led to the unification of Italy in 1861. Each year even today, Neapolitan and Sicilian organizations place remembrance wreathes in "Les Forçats" to commemorate their dead. Further research is needed to uncover the truth of what really took place during that



A burial scene at Fenestrelle

period. A drawing of the period portrays what appears to be a burial, apparently just outside the walls, near the service entrance.

Some of the prisoners also left drawings on the walls of their cell. These have unfortunately disappeared due to the humidity which has crumbled the plaster, although luckily, photographic evidence remains.



Drawing on a cell wall (now lost)

THE POWDERHOUSE OF SANT'IGNAZIO

Situated above the Barracks, the Powderhouse of Sant'Ignazio - named in honour of Bertola, the architect of the fortress - is the most important of the whole complex. Square in plan, it has triple perimeter walls several metres thick to protect both the powder magazines from enemy shells and the nearby buildings in the event of an explosion within. The central nucleus is surrounded by humidity-proofing walls giving air circulation to ensure that the powder, stored in large barrels, remained dry and serviceable.



The Powderhouse of Sant'Ignazio with the lightning conductor tower in the foreground

Internally, the nucleus is just over 10 metres per side and once consisted of two floors; as can be seen by the holes which housed the trusses for the wooden beams of the upper floor.

Since everything, including the very air itself, would be saturated with gunpowder, all metal fittings, including door hinges and locks, rings, chains, even the floor nails, were of copper, brass or bronze to avoid the creation of dangerous sparks. Everybody who entered had to wear wooded clogs and a type of apron to cover any exposed metal parts which might cause sparks.

Two special windows provided illumination inside the powder magazine, illustrating how much care was taken to ensure safety within. Internally, a thick sheet of glass was "glued into" a tight fitting frame with molten sulphur, while from the outside, a lockable metal door gave access to a ventilated shelf which held an oil lamp. The key was held by the Officer of the Watch to avoid sabotage.

Despite the anti-humidity measures, the transportation of gunpowder between the mill and the fortress was a routine and frequent operation due to the hygroscopic effect of potassium nitrate or "salt-petre", the major component of gunpowder. The gunpowder was ground and mixed in the Armoury of Pinerolo, brought in barrels to Fenestrelle in special transport carts then carried the last part of the way by mules. Gunpowder is relatively unstable, thus prisoners (being "expendable") were often assigned to this final dangerous and delicate operation.. The mules were unshod and climbed the mountainside in single file before entering the fortress one by one through a "secret" entrance known as the "Postierla" or back door. A corps of guards was stationed at this gate for security reasons. Once within the fortress, each mule with its dangerous cargo had only to complete a short, straight and level path, some 60 meters in length to reach the unloading courtyard of the powderhouse. The path was wide for most of its length, then narrowed at the junction with another path which descended from behind the powderhouse. Once its load had been removed, each mule continued anti-clockwise

round the powderhouse, climbed a short ramp to circumnavigate the powderhouse then descended back onto the wide part of the path, allowing it to exit the fortress by the same gate it had entered. The “convoy” was kept to a length which ensured that the unloaded mules never had to pass loaded mules for safety reasons.

After 1865, the powderhouse was modified and provided with a new shellproof and fireproof roof: this consisted of a robust barrel vault, well waterproofed with bitumen and overlaid by a layer of earth some two meters thick. The building was also furnished with a system of lightning conductors. Four iron rods about five or six meters long terminating in gilded stars were planted in the earth-covered roof, interconnected by a copper strip. This ran into a curious little tower, shaped like a truncated cone, alongside the powderhouse, in a small depression to keep the base damp. The end of the copper strip was fixed in turn to a copper ball to which were attached a series of sinusoidal-shaped rods. The ball was submerged in damp sand at the base of the tower to ensure that any lightning, attracted by the iron bars on the roof and conducted along the copper strip into the tower dissipated itself completely to earth. This system of lightning protection was substituted in 1930 by a metallic screen: the entire building was enclosed along the perimeter walls and roof by a gridwork of iron strips, forming a Faraday cage, which like its ancestor, was earthed via the little tower.

A further curiosity is the low ogival archway in the base of the tower. At first sight this seems like a little oven, but its true function is even more practical. It is a discharge well.

The powderhouse was under armed guard day and night. Muzzle-loading weapons cannot be readily unloaded, so when the watch was changed, the off-duty guards discharged their weapons into the damp sand to recover the lead ball. This feature was common to the various other powder houses of the complex. It is said that the nearby villagers could tell the time when they heard the crackle of the guns being discharged each time the relieved guard finished their watch.

THE MAIN, or ROYAL GATE

Today's visitors enter through the "service entrance", which was, naturally enough, on the side nearest the enemy, with the scope of allowing patrols or troops to regain the safety of the fort across the drawbridge, which could then be quickly raised.



The Service Entrance

The main entrance to the fort was on the Piedmontese side. This juxtaposition of entrances was common to most military fortifications, and indeed, in the event of being captured by the "enemy", the two entrances had their roles reversed! The Main or Royal Gate to Fort San Carlo was reserved for the nobility of the King's court, Ambassadors and other visiting VIPs. It was reached by means of a carriage road full of hairpin bends which joins the present main road to Pinerolo just below the 13th Century Chateau Arnaud.



The Main or Royal Gate

The Gatehouse itself is an imposing three-storey building, originally furnished with a drawbridge and had a large hallway at ground level where the visitor's coach and horses could be housed. The spacious rooms of the upper storeys were given over to apartments for guests, dormitories for body guards and store-rooms. It later became the apartments of the military engineers.

The external facade is graced by finely carved portals, large windows and decorations in stone, all elegantly finished. Unfortunately, removal of the protective stones from the roof and damage to the original larch beams by predators has caused the collapse of most of the roof and the internal flooring, leaving only the external shell. One of the projects begun in the summer of 2004 is to re-roof this once magnificent building.

Immediately on leaving the Gatehouse, the visitor found himself in a funnel-shaped courtyard, surrounded by high walls, which could be manned by musketeers able to bring the courtyard under crossfire if necessary. A steep slope led up past the artillery workshop and round the side of the Officer's Pavilion to the Parade Square. It is presumed that the VIPs rode up on horseback, as it is too steep and tortuous for a coach to pass.

As our VIP rode up the slope, he would pass by a long two-storey building - the armourers' and carpenters' workshop.



The Armourers' Workshops

Here the weapons used by the fortress were maintained, repaired and tested.

This building, with seven arches and magnificent vaulted ceilings, still conserves

the chimneys of the two forges used for metalworking.

The first four archways to the left were used as store-rooms, while the other three were workshops for the maintenance and repair of the weaponry. One workshop has a peculiar, round aperture in its high ceiling. Its purpose will become apparent as you read on.

The original bronze cannons of the fortress were, naturally enough, smooth bore, and fired a cannon ball of slightly smaller diameter than the bore itself, sometimes wrapped in leather. On firing, the ball was propelled up the barrel more or less in a straight line, ricocheting against the bore along the way, and causing some damage to the bore itself. This plus the imperfection of the projectile itself made the trajectory and impact point a matter of guesswork at anything over two hundred metres or so, although master gunners with practical experience of individual cannons knew how to use each one to best effect. Artillery was generally a fairly short range weapon unless the target was of such size that precision was not important. Periodically, however, bronze cannons needed reaming-out to keep them operative, removing any damage caused by the cannonball or by excessive quantities of gunpowder.

In this workshop, the cannon barrel was hoisted vertically by a system of pulleys operating through the hole in the ceiling, from where it was gradually lowered onto a manually-turned boring tool which cleaned up the bore to a uniform dimension. Part of the stairway to the upper floor still exists.

Following this reaming, the cannon was tested by firing a wadded (blank) round. The cannon mouth and the touch hole were then quickly sealed. If no smoke appeared through cracks, the first part of this empirical test was considered successful. With the touch hole sealed with wax, the cannon was then filled with water and allowed to stand for some hours.

If no leaks were found and no traces of humidity were seen, the final stage of the test took place. An appropriately sized jagged and hooked instrument was slid down the bore. If this got caught up anywhere, the cannon was

reamed again. Irrecoverable cannon were sent to the Royal Arsenal in Turin to be melted down and recast. Every piece was worked individually, frequently becoming a genuine work of art, thanks to its markings, its decoration and the mottoes or other inscriptions which distinguished it. Many were known by name: "Leggero", "Adaloaldo", "Juno" and "Balista", to name but a few, are currently in the care of the National Museum of Artillery in Turin.

THE RAMPARTS

The ramparts are those giant "buttresses" positioned on the "enemy" side (i.e. the one that faces France), strategically visible from a great distance, forming "a titanic flight of steps, like an enormous cascade of overlaid walls, mounting tortuously one on top of the other, giving the effect that they were climbing the mountain each on the shoulders of another" (De Amicis, *Alle porte d'Italia*).



The Ramparts

There were 28 Ramparts in all, each about 20 meters wide and are internally interconnected by various ramps and stairways. They are numbered progressively from the lowest to the highest and sinuously wind one after another along the steep flank of the mountain right up to the defences of Fort Tre Denti, forming three bastions: - the San Carlo, the Beato Amedeo and the Sant'Ignazio. The height difference from one to the next varies from between 3 to 13 meters. They begin at the lowest tenaille (the Sant'Ignazio), the lowest structure positioned to the South-West which delimits and protects Fort San Carlo and the Royal Gate itself. Close by, a small

powder magazine was built towards the end of the 19th Century. It has no name, but is identified by a Roman number, LXX (70). Each building and construction was numbered to enable the soldiers and officers to properly orient themselves within the fortress). From the tenaille up to the XVIth rampart the bastioned wall is further protected by a wide, deep ditch which runs like a ravine down to the Carlo Alberto redoubt below.

The majority (22) of the ramparts are open squares surrounded by high curtain walls pierced by cannon outlets and loopholes for the riflemen; during the 1800's the remaining six were provided with casemates, i.e. artillery positions closed by a shellproof vaulted roof, open at the rear to facilitate the evacuation of the gas produced at each firing. One of these great Ramparts, the 12th, has the most magnificent and unusual "cockerel-tail" brickwork vaulting supporting the enormous weight above it. This great quadruple arch is the only one of its type in the fortress and is a masterpiece of elegance and functionality.



The cockerel-tail arch in the 12th Rampart

The upper blockhouses still conserve the two half-moon shaped tracks built into the stone flooring which allowed the guns to traverse laterally, and in a niche, in the curtain wall below the cannon port, the cast iron hook which was used to anchor the tail of the chassis can still be seen.

Each casemate has a small store-room for the tools required for the functioning and maintenance of the artillery pieces, and a small stock of spare parts. This store-room also held the munitions and powder needed to sustain at least three days of firing. The floors

of these rooms were formed of interlocking wooden beams, cunningly raised clear of the ground on stone pillars.

THE CARLO ALBERTO REDOUBT

In 1836, the Military Engineering Council decided to completely dismantle the ancient French fortress, Fort Mutin.

Considered obsolete and dangerous after nearly one and a half centuries of service, it was substituted by a new structure, which completed the barrier across the valley, even at its lowest point.

The Carlo Alberto Redoubt, named after the King who financed its construction, originally consisted of two squat buildings joined together, located on the left bank of the Chisone, strategically straddling the Royal Road, today's road leading to Sestriere.

The building, most of which still exists today, stands on the bank of the Chisone, and is of square plan-form, shaped like a truncated pyramid (due to the sloping thick defensive walls). It is five storeys high, of which two are below road level, with each room vaulted to be shell proof. It was furnished with numerous cannon ports, 11 on each side of the road, perhaps of lesser calibre than those at Fort San Carlo since the casemates had neither directional tracks nor anchor hooks.

The missing western part was demolished by mines in July 1944 by the partisans of the Serafino Division in an attempt to impede the rounding up of the population and the march of the Germans towards the Upper Valley.



The Carlo Alberto Redoubt today

This part of the building, consisted of four storeys of rectangular form, directly

controlled the important road running down the valley by means of a drawbridge and an iron portcullis on each side, completely blocking the passageway.

The Carlo Alberto Redoubt also had loading rooms and a powder room of 24 square metres called "della Tagliata", located a short distance from the moat of the same name which proceeds upwards right to the eastern tennaile of Sant'Ignazio.

A deep trench, or cutting, protected by a still existing curtain wall pierced with loopholes, connected the Redoubt with the "Colombaia" (Dovecote): this was an annex of the former Chateau Arnaud, the 16th Century seat of the Chatelain who administered justice in the Pragelato Valley. This edifice had since become the redoubt of Fort Mutin, and had been used to house and raise carrier pigeons. Today it is private property.

An unmade military road still connects the Carlo Alberto Redoubt and the Colombaia, then joins the road which leads to the Royal Gate of Fort San Carlo at the end of a tunnel more than 80 metres long carved out of the solid rock, locally referred to as the "Rocca Furà", (perforated rock). This was excavated in only four days during the 1708 seige of Fort Mutin in order to bring a battery of great seige cannons up to a position corresponding to the Parade Square of Fort San Carlo.

THE TRE DENTI FORT

This fort is located at the top of a steep rocky ridge some 1400 metres above sea level.

In the late 1600's this site was fortified with the construction of a French redoubt in accordance with the instructions of Marshall



The Tre Denti Fort

Nicola Catinat, as an integral part of the defensive system of Fort Mutin.

For this reason, we find the Main Entrance on the French side and the service entrance on the Piedmontese side.

Following the Treaty of Utrecht in 1713, the first Savoyan military engineer responsible for the Tre Denti fort was Major Giulio Cesare Bessone who in accordance with his orders dated 13th June 1720, intervened to amplify the defences beyond those constructed by the French, and amongst other things built the "Devil's Garret", a splendidly panoramic observation point high up on the side of a precipice with a 20 meter drop below, overlooking the Tre Denti fort - reachable only by means of a steep and narrow 6-flight stairway.



The Devil's Garret

Its name is said to come from events during its constructions, when having completed a certain part of the work by day, unseen hands threw down the work by night, leading to the superstition of "devilish work". However, considering that its construction was only a few years after the Treaty that had transferred sovereignty of the valley from France to Savoy, it seems much more probable that the unseen hands were those of French sympathisers in the valley - or maybe it was just a very unpleasant place to spend the night on watch, with the wind howling eerily about the ears of the sentries . . .

These works of fortification, which for the most part consisted of repairs and

modifications to the former structure, with barricades made up of larch trunks, continued up until 1730 when the Tre Denti was integrated into Bertola's ambitious military barrier across the valley.

By that time it had been furnished with artillery batteries but had few buildings, most of which were built into the solid rock, but which were sufficient for its needs: it had a two storey barracks for the troops and the officers with an attic which doubled as a storehouse (now missing the wooden flooring and the roof, which was capable of being dismantled in time of war to avoid being damaged, a square-shaped, stone-roofed powder house, built some way away from the other buildings and also provided with a curious truncated cone-shaped lightning conductor tower, a low building of which only a few ruins remain today, perhaps used later as a mule stable, a water cistern and a new underground aqueduct.



The entrance to the aqueduct at Tre Denti

This aqueduct is a minor masterpiece of hydraulic engineering: below the Tre Denti fort, a 424 meter-long artificial conduit some 130 cm high and 80cm wide was driven deep into the mountain to reach water in an underground spring active all the year round. An overflow from the main stream feeds the small drinking fountain in the foreground of the photo above. The main stream runs down alongside the Covered Staircase, within its own little tunnel to feed both Fort Tre Denti and Fort San Carlo.

From there, running in another tunnel beneath the parade square, it reached the "emergency

exit". There, a drawbridge, of which only a few of the support beams remain, gave onto the Piedmontese side, in the Mentoulles woods. This secondary gate, a feature of all these old forts, was protected on one side by a Corps of Guards, whose post was dug into the naked rock and furnished with firing loopholes.

BATTERIES AND REDOUBTS

In the area between the Delle Valli and the Tre Denti Forts, inside the enormous walls (likened by De Amicis to being "a part of the Great Wall of China") containing the Covered Staircase, acting as both a unifying element and a defensive barrier, other military works aiming to augment the fortress's defensive capability were built: the Scoglio and Ospedale Batteries and the Santa Barbara and Delle Porte Redoubts.

These were intermediate positions, of modest dimensions as their names suggest, but no less strategic and deadly when the occasion demanded, and important in the general scheme of the defences.

Starting from the lowest point, just beyond the Tre Denti Fort, the Scoglio Battery is reached first. This is characterised by the presence of three emplacements one above the other along the slope, on which were positioned cannon or mortars, and by a single low and modest building: this acted partly as a storehouse for projectiles and munitions for the cannon and mortars and partly as a signalling post. On the western wall, the well-out-of-plumb framework of a window can still be seen. Originally, a signalling light from within the building would shine perpendicularly and distortion-free through this window to be seen from a similar optical position in the military battery of Monte Gran Costa, some ten kilometers away in the direction of France. The exchange of such signals allowed communication at any hour of the day or night.

Following this we come to the Santa Barbara Redoubt at 1550 meters above sea level. This is a stone edifice in the form of a truncated pyramid, with steeply inclined walls up to 6 meters thick, with two sides buried in the

mountain. Only the south face has window openings, protected by robust iron grillwork. The building has two storeys: the upper floor was the dormitory for the garrison, while the single large ground floor room, with its stone-built fireplace, was used both as the refectory and store-room. A well gave access to an underground cistern (which even today is full of water), something which also here made the Redoubt self-sufficient in the event of an invasion. The projectiles reached the roof directly from the arming rooms below by means of a hand-operated lift located in a purpose built tower erected on the eastern side of the building.



The Santa Barbara Redoubt

Accessible from the external stairway, a tunnel in the cellar also leads onto the Covered Staircase. The Redoubt is also externally connected by a drawbridge which gives onto a junction of the Cannon Roadway.



The Drawbridge at Santa Barbara

The gently sloping roadway, once used by the muletrains which dragged the cannons to their various positions runs through a pine wood of considerable natural beauty on the Fenestrelle side. It is characterized by 26 hairpin bends, each identified by a stone marker with its number (they are numbered from the bottom to the top).

The existing drawbridge mechanism for the Santa Barbara Redoubt was made in 1884 by the G. Maggi company, as can be read on the iron parallelogram counterweight mounted on two high pillars, its chains still in place.

It is important to recall that in 1882, Italy became part of the so-called Triple Alliance with Germany and Austria. A number of military works were built or reorganized close to the French border (one example is the fortress built on the top of Mount Chaberton at over 3000 meters above sea level).

The fortress of Fenestrelle was also involved in this reinforcement work in many places, and had two new outposts added: Fort Serre Marie and the Falouel Guard (popularly known as “the Dice” due to its being shaped like a cube. At the same time, the Santa Barbara Redoubt and its twin Delle Porte were armed with greater calibre pieces, located in emplacements at the top of the building, in specially built seats.

The foundation stones for the rails which allowed the guns to be traversed can still be seen although the rails themselves have long since been removed.

The Delle Porte Redoubt (at 1680 m) is slightly larger, but very similar to the Santa Barbara, in terms of the internal arrangement, external shape and typical features, including the presence of two artillery positions on the roof and the lift for munitions.

The Redoubt is preceded by a powder magazine of 36 square meters with its own entrance from the Covered Staircase, built towards the East on the slope protected by the crest.



The Delle Porte Redoubt

Finally, a short distance away, the Ospedale battery can be found: this position only holds two gun emplacements and a small reserve of munitions inserted in the tunnel leading to the Covered Staircase.

In the 20th Century, the emplacements of these batteries were modified to allow the installation of twin-barrelled 11mm Gardner machine guns whose task was to protect the underlying trench by crossfire along the line of the walls.

There was no permanent barracks for the garrison, as this post was not far from the Delle Valli Fort or from the Delle Porte Redoubt. The Ospedale Battery presumably gets its name from the nearby barracks utilized as a “hospital”, but erected, due to lack of space, outside the curtain wall.

THE DELLE VALLI FORTRESS

As previously mentioned, the building of the Savoyan military complex began at the summit of Mount Pinaia (1780 m), from the Delle Valli Fortress and from the Elmo and Sant'Antonio Redoubts. At the beginning there is no mention of the Belvedere Redoubt, which is cited with the name of "forte delle valli": The three redoubts only began to be known as the Delle Valli Fortress from the 1800's.

Initially, the preliminary works were contracted out. This involved construction of the lodgings for the workforce, the supply of sand, lime and wood, provisions and the construction of a wooden aqueduct of “bornelli” (hollowed out trunks of seasoned

larch) to bring water to the construction sites "from Pinaia as far as Chateau Arnaud for the "Fortifications that His Majesty ordered to be erected in these places".

Following that, the so-called "travagli di rocco" (stone working) began: "uncovering, excavation, levelling etc" - an enormous amount of work necessary to obtain the principal construction material (grey serpentine rock) and to construct the foundations upon which were erected the great walls and buildings.



The Main Entrance to the Belvedere Redoubt of the Delle Valli Fort

The entire fortress is surrounded by deep trenches, protected by walls pierced by defensive loopholes, massive traverses and tennaile bastions which eliminated any "dead ground" and rendered this bulwark practically impregnable.

Here, the buildings, for a question of space, are more grouped and clustered together: this fact, coupled with the distance from the town of Fenestrelle and its attractions, almost certainly reduced the formal rapport between the officers and the common soldiers.



Incision at the Belvedere Redoubt

Many stones and even the walls still carry the incisions made by the soldiers, whiling away the time, probably during their watch periods, something which was evidently tolerated by the officers.

During the 1820's, as indicated in a report by Major Perventi, each garrison was in service at the fort for three (long) years before being transferred. He recommended that this period should be reduced since it had negative repercussions on both morale and discipline.

The Belvedere Redoubt is the most extensive and complete of the three, and is connected to both the Covered and the Royal Stairways. From the latter, access could be gained to the Royal Gate by crossing a drawbridge (the Royal Bridge, without a doubt), consisting of three parts, one (that nearest the entrance) which could be raised and two fixed parts consisting of larchwood footpaths standing on two high pylon walls which thrust upwards for almost 10 metres from the trench below.

The heavy counterweight of wooden beams which operated the drawbridge can still be seen within the building.

This construction is also called "the Temple" due to the presence of "classic-style" decorative elements on the facade (pillasters, cornice and a triangular timpanum), giving an aspect typical of religious buildings. Above the ogival arched entrance, an inscription within a frame reads "Forte Valli, quota 1727 m" (Fort Valli, 1727 m above sea level)

Not far from the Royal Gate are the powder magazines (identified in a map of the late 1800's as the "San Carlo at the Valli Powderhouse") and a 3-storey guardhouse. The organization within the powderhouse is

identical to that of the Sant'Ignazio powderhouse. There was also a lightning tower, but only the foundations remain in the southern trench.

The stone roof slabs have been partially removed, allowing us to see the great beams of larch, each some 40 by 40 centimetres in dimension.

Behind the powderhouse stand the three Barracks.



The Barracks at the Belvedere Redoubt

Each of the barracks, similar to the barracks at Fort San Carlo, consists of three storeys above ground with a semi-interred floor. The upper floors held the dormitories for the garrison. The officers slept in the 3rd Barracks, which had a series of smaller rooms and whose facade was enriched by three stupendous stone balconies. In the lower floors, apart from the numerous storerooms for hay, straw, wood and foodstuffs there were the kitchens (with two brick ovens and two cauldrons, the refectories and two water cisterns. These are independent and exceptionally large: one measures 5.65 x 5.3 x 4.3 metres and has a capacity of more than 100000 litres of water, the other measures 12.3 x 5.3 x 4.3 metres and can hold more than 280000 litres.



Winter at the Belvedere Redoubt

The barracks were the nucleus of the fort. It was here during the winter months - when the snow blocked the roads and the danger of aggression was unlikely - that the garrison "hibernated" in what was the warmest part of the fort.

The chapel at the head of the 3rd Barracks is particularly beautiful. The baroque facade is ornamented with pillasters and decorations in yellow granite: internally, despite being somewhat cramped for space, it surprisingly soars upwards about 10 metres. A small bell tower stands above the roof.



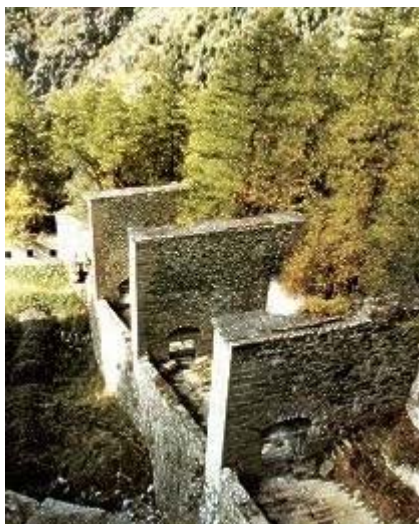
The Delle Valli Chapel

The Belvedere Redoubt was defended by more than 20 artillery pieces, of which 7 were in casemates on the southern and south-western fronts while the others were in open positions distributed round the perimeter. There were also various storerooms for

munitions and spare parts alongside the casemates for the loading and maintenance of the cannon.

The Belvedere Redoubt was in communication with the next, intermediate one - the Sant'Antonio Redoubt - by means of a fixed central bridge (removed) and a pair of lifting drawbridges with parapets and loopholes for riflemen; in turn, this Redoubt was in communication with the highest one - the Sant'Elmo Redoubt - by means of three similar bridges. For some years now, two of the four drawbridges have had their wooden walkway renewed, allowing guided visits to the highest part of the whole complex.

To complete the description of the Belvedere Redoubt, it is worth remembering the existence of a long, steep flight of about 50 steps, known as the Stairway of the Three Traverses, or the Savoyard Steps, which run from the eastern trench to the path leading to the connecting bridges to the Sant'Antonio Redoubt. Its name comes from the three high walls or traverses which protected the path in the event of it coming under fire. Their remarkable size and thickness was to ensure total protection for users of this stairway, even under severe enemy fire.



The Savoyard Steps

The Sant'Antonio Redoubt is of modest dimensions and comprises only one building, half buried in the solid rock, consisting of a two-storey powderhouse on the eastern side

and eight small rooms for the tiny garrison on the southern side.



The Sant'Antonio Redoubt

The upper part of the powderhouse is divided from the main building by a splendid brick barrel vault anchored with metal guy-rods to a second extremely thick and cannon-ball-proof vault, which covers the entire building. Two mortars or small calibre pieces were sited on this terraced roof, while there are two small munitions stores located alongside the powderhouse.

The Sant'Elmo Redoubt has a similar facade to that of the Sant'Antonio, with five windows defended by stout iron bars and a small ogival-arched doorway preceded by a small access terrace. This is the only entrance to the Redoubt.



The Sant'Elmo Redoubt

It is surmounted by seven casemates on the western side, added around the middle of the 19th Century to protect the new, more powerful (and costly) cannon which had entered service. Six were aimed towards the

road crossing the Colle delle Finestre and one, located in the highest part of the fortress, at a height of 1783 metres above sea level, was aimed at the plateau of Pra Catinat.

To the North and to the East, 10 open emplacements housed an equal number of light cannon pointed towards Pra Catinat and the lower Val Chisone.

The Sant'Elmo Redoubt also possessed an efficient optical semaphore system in communication with the Mezzodi (Mid-day) Point. A lily-like double tennaile terminates the fortress at the mountain-top, completely surrounded by a walkway with positions for riflemen.



The Ponte Rosso (Red Bridge)

It gives access to the road for Pra Catinat by way of a beautiful bridge (the Ponte Rosso, or Red Bridge) with its four splendid ogival arches spanning a deep man-made defensive gorge, which was essentially the quarry from which the stone to construct the fort itself was extracted.

This bridge was guarded by a drawbridge and a massive iron gate between two high pillars, on each of which was mounted a stone cannonball. Being in full view, these were intended to be a warning and deterrent to possible attackers, symbolising the fearful weaponry the fortress possessed.

CONSTRUCTIONAL DETAILS

The entire fortress of Fenestrelle is built on a spur of uniform rock belonging to the family of metabasitic basalt, a type of the so-called green-stone calcium complex usually referred to as "serpentine". With the few exceptions where granite or brick are employed, the

entire structure is built of this green-hued rock.

The preparatory work, at that time referred to as "travagli di rocco" (stone working), consisted of a series of successive operations, reduction of the slope, uncovering, excavation, tunnelling and levelling the rock - an enormous amount of work necessary to obtain the basic materials for construction and to establish the foundations of the stoneworks themselves. It has, however, been ascertained that the greatest part of the material moved, i.e. stones for construction, rubble, gravel and infill was transported or heaped no more than 25 *trabucchi* (about 77 meters) from its place of excavation to its final location. It has also been established that large blocks of stone were mined from the great trenches which separate the Sant'Antonio Redoubt from both the Elmo and the Belvedere Redoubts were also used to build the Delle Porte and Santa Barbara redoubts, being allowed to tumble down the channel until they brought up against a purpose-built massive dry-stone wall. It was really an ingenious method to transport the material and at the same time to break the rock into pieces of more manageable size. Lime was used as the binder in all masonry-work. The limestone was usually excavated from quarries in the Fenestrelle area "in the Territory of Mentoulles" (today Pra Catinat) and Roure, in the region called La Comba, Boursetto, and where convenient, from Colle della Rossa. In certain instances, when it was necessary to ensure the best results, as in the case of rendering the water cisterns impermeable, the lime was brought from Superga (the hill overlooking Turin itself) being the best in the whole kingdom. Where bricks were used they were "all of true mezzanella" (i.e. of medium dimensions), "well sounding and regular in all their parts, of length six ounces" (here the *ounce* was a linear measure of about 3 cm), "width three ounces and height one and a half ounces, made of good quality clay and according to the best rules of the art" and came from the furnaces of Pinerolo and Meana. The roof beams and ceilings were fabricated from "carefully seasoned wood of red maleggine" (larch), felled as usual in the

forests of Fenestrelle and Pra Gelato, “during a good (i.e. rising) moon”. The sand for the cement was extracted from the Chisone torrent, “in the direction of Mentoulles or towards Pourrieres, in the places judged most convenient by the Royal Service”. It had to be “well granulated, passed through the grate” (i.e. sieved), “washed in clean water and free from any refuse material”.

The roofing-stones came from the quarries of the valley, “all intact, sounded and regular, of natural stone and each of about two feet in length, one foot in width and between three-quarters to one ounce (i.e. about 2 to 3 cm) in thickness.” These same quarries also furnished the stone used to fabricate the arch supports, door lintels, decorations and mouldings of the most representative buildings, as it was capable of being worked with precision and geometric rigour. The window grilles, the chains, the key-heads, the “bolzoni” (heavy iron fittings) and the “grappe” (U-shaped bars used to join stoneworks) as necessary” in their turn had to be “true iron of Aosta and not of any other place, without blemishes, burn marks or other defects which could prejudice their effectiveness.”

During the course of the many tens of years of the fort’s construction, thousands upon thousands of people, indeed generation after generation, took part in its building. Two documents of 1732 and 1733 provide interesting and important information regarding the definition of the tasks of the workers; the first is signed by the architect Maller, and the other is signed by his successor, De La Marche. The two reports describe the “status of progress of work” and indicate the numbers and the main tasks of the workers. Some 4200 people (practically a town in its own right) are identified, subdivided as follows: 508 master masons and master builders - those who materially erect the stoneworks and the vaultings - of proven capacity and expertise; 178 local miners and 17 officials of the Company of Miners - responsible for breaking up the rock, using mines and gunpowder and preparing the foundations of the constructions; 213 stone workers - those who break up the large blocks

of stone, reducing their dimensions and shaping them according to the requirements of the masons; 35 carpenters or master woodsmen - those who are specialised in the placement of the wooden carpentry within the buildings and the scaffolding thereof; 36 blacksmiths - those whose job it is to set in place the window grilles, draw the roof trusses and the working of iron in general; 71 “cabassins” i.e. porters who carry away the excavated material (soil, stone chippings, sand etc) in a wicker pannier (cabassa) on their back; 1460 local workers - those assigned to the heaviest and least specialized work (moving and lifting the heavy stones and generally helping the master masons; 116 assistants whose job is to check and verify that the work is proceeding regularly; 1667 soldiers from the various companies: 325 soldiers of the Guards, 336 soldiers of Savoy, 648 soldiers from Monferrato, 348 soldiers from Saluzzo. Of those, nothing lets us know what task (if any) they had within the workings. It would appear probable, however, that they were not there merely to guard the territory, but also to “collaborate” actively in the construction work. Although no trace has been found in the archives of forced labour being employed, as fantasy might suggest, it cannot be ruled out that forced labour was used in limited periods (but in any case long after the main construction phase in the 1700’s), when the fortress was “host” at various times to convicts and soldiers under arrest.

Copyright 2004 Ashleigh Hogg