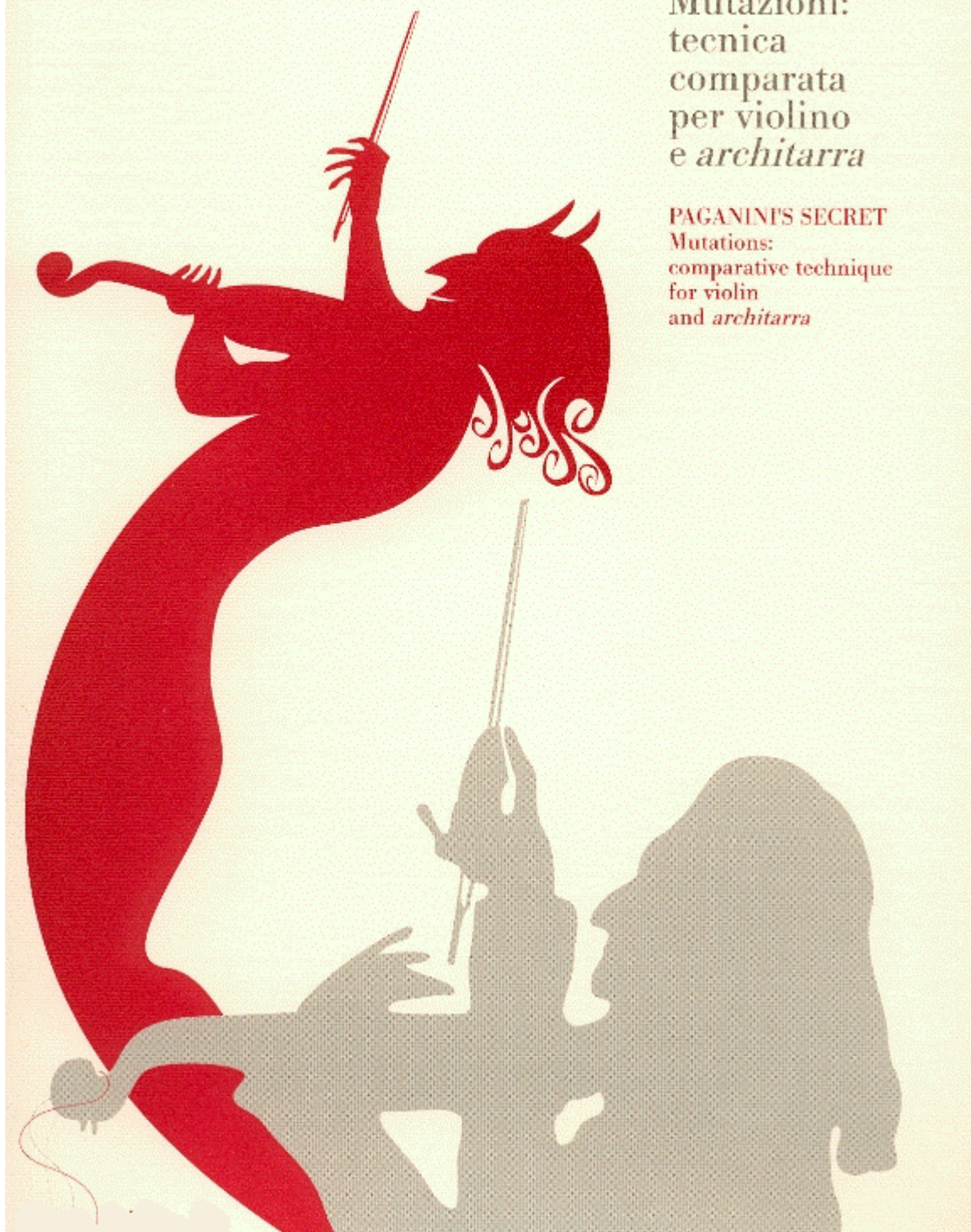


IL SEGRETO DI PAGANINI

Luigi Pentasuglia

Mutazioni:
tecnica
comparata
per violino
e *architarra*

PAGANINI'S SECRET
Mutations:
comparative technique
for violin
and *architarra*



PREFACE

In the Preface to my transcription of some studies (R. KREUTZER, *Twelve Studies*, Bèrben, Ancona, 1987) from the violin to the guitar, I examined and analytically evaluated the process which, historically speaking, brought about a true technical and stylistic osmosis between string instruments and the guitar, that is to say, the reciprocal transfer of factors related to their respective performance practices.

The convergence between the guitar and string instruments reaches its full maturity in the early 19th century when literature for the guitar grows thanks to the contributions of a number of *composer-interpreters* like Sor, Giuliani, Legnani, Carulli, Morlino, Zani de Ferranti, Magnien and of course Paganini.

Not by chance did all these artists devote themselves to the guitar and at the same time to a string instrument. The eclecticism which is at the base of their development never matured into a state of methodological awareness. This is also proven by the fact that, in their didactic works, they felt the need to go back explicitly to the factors of stylistic transposition that so clearly characterise their compositions for the guitar. The latter is almost always treated as a monodical instrument like the violin, in any case with some additional harmonic potential. They were thus extraordinary interpreters, but unaware of what made them extraordinary.

Among them there was in my view one exception - Niccolò Paganini. This coincidence could not escape Hector Berlioz (who was an expert guitarist himself) since, when he expressed his admiration for Paganini's exceptional technique, he explicitly traced it back to the latter's training as a guitarist. In a passage of his "Memoirs", he found fault with the violinists of his time, saying: «...*the passages and arpeggios that are easy to perform since guitarists perform them on the violin, are said to be impossible to perform by violinists....what little our young violinists know is what they have learned on their own after the appearance of Paganini*».

Paganini's background as a guitarist, indeed, seems to have had no slight influence on the style of his compositions for the violin, as is demonstrated by his use of *pizzicato* achieved only with the left hand (corresponding to the *legato* on the guitar), or his preference for chromatic virtuosisms. These are almost certain to have been suggested by the fingerboard of the guitar which is well-suited for such long and complex passages.

At the same time, his background as a violinist must have influenced the style of his compositions for the guitar, as the frequent fast scales for simultaneous or broken intervals of thirds, sixths, octaves and tenths in his guitar compositions - similar to those on the violin - demonstrate.

Might Paganini have worked out a theory for a method based on the technical affinities between the violin and the guitar? I do believe that this is quite likely. Obviously, Paganini was careful not to reveal his *trick* and this for at least a couple of good reasons. The first is that once his *secret* had been revealed, it would have appeared by no means *diabolical* and, in this way, he would have debased the myth of the exceptional instrumentalist - a rarity in an epoch dominated by melodrama in every field. The second reason may be the fact that the system worked out by Paganini was presumably founded on an intuition that was well ahead of its time - a *chromatic system* like Sevcik's, for instance, would certainly have had a disappointing effect.

An explanation may be sought in the customs of the period and in the situations and figures that may provide reliable motives by analogy. A special practice of the virtuosos of the time, for example, was based on the *scordatura* - putting of an instrument out of tune - something Paganini often did on the violin. The Genoan artist's variation of the tuning amazed critics and fellow-violinists of the period and it still amazed us today. "By tuning the violin in a way that differed from the usual, Paganini was able to perform passages that would otherwise have been impossible to perform... One may well understand the terrible difficulties the artist faced when he was compelled to mentally calculate the relationship between the various chords that have been put out of tune... nevertheless performing difficult passages rapidly, self-confidently and with no uncertainty or hesitation. If this is true, it is something marvellous or, better yet, something miraculous, as anyone who knows the violin and is familiar with its mechanism, can imagine" (A. Bonaventura).

I have advanced the hypothesis that Paganini's "scordatura" is very likely to have substituted the tuning of this instrument with that of the guitar. In other words, a passage conceived and studied on some guitar chords could be adapted and performed with the same positions on the violin. Consequently, what seemed to be an unsurmountable obstacle to many, would -according to my hypothesis- be reduced to no more than a prosaic expedient. What may demonstrate and explain this (as I had already expounded the above-mentioned Preface to the Kreutzer Studies) is Paganini's frequent recourse to the following tuning of the violin in his *improvisations*:

Chords	IV	III	II	I
Tuning		B ^b	E ^b	B ^b E ^b
Intervals		4 th	4 th	

This would, in fact, have allowed him to perform on the violin actual transpositions of entire passages on two chords studied on the guitar by exploiting the intervals of fourths which are typical of this instrument.

Moreover, the (apparently systematic) raising of the fourth chord of the violin from G to B^b every time that he prepared to improvise only for the fourth chord, brought another consideration to mind: Paganini could have tuned the fourth and third chord of the violin in a relationship of third major (B^b - D) and the second chord in a relationship with the third with an interval of a natural fourth (D - G), or with the interceding intervals respectively between the first three chords of the guitar (G-B= third major; B-E= fourth natural). In other words, The violin is normally tuned

	IV	III	II	I
	G	D	A	E
interceding intervals	5 th	5 th	5 th	

According to my hypothesis, the violin was tuned this way:

	IV	III	II	I
	B ^b	D	G	E
interceding intervals	3 rd	4 th	6 th	

The first three chords of the guitar are tuned:

	III	II	I
	D	B	E
interceding intervals	3 rd	4 th	

In the tuning variations on the violin that I have hypothesised, the fourth chord is raised to B^b (as Paganini was in the habit of doing), the third chord remains a D (as in the normal tuning of the violin) and the second chord becomes G (lowering the A by one tone). The surely *uncomfortable* presence of sixths intervals between the first and second chord would certainly have been overcome by Paganini with the ingenious idea of a *sudden* break of the first chord. In this way, the yielding of a treble string which had always been believed to be fortuitous, was indeed done on purpose by Paganini when he was about to perform on the remaining three violin chords difficult passages that had probably been studied on the first three chords of the guitar.

During the entire 18th century the "scordatura" was not only done on the violin but also on other instruments, including the guitar. This is well-documented, especially by Paganini's friend, the other great virtuoso Luigi Rinaldo Legnani who was also both a guitarist and a violinist. As we shall see, there are valid reasons for supposing that Paganini himself practiced the "scordatura" of the guitar (solely for study purposes), by tuning it at fifths intervals, that is, like a violin.

Paganini's assertion that he used the violin only during concerts but that he studied on a *large sized violin* is symptomatic; this enabled him to strengthen his fingers and make them more flexible. Clearly this *quip* was an attempt to ward off suspicion regarding the actual importance of the *trick*, all the more so since a large-sized violin is nothing but a viola. We may ask why Paganini did not call this instrument by its real name. Might this phantomatic instrument be identified -as I fundamentally believe- as the guitar, or, better yet, as the "chitarra terzina", very popular at the time, which is smaller in size than the ordinary one and thus more similar to the viola?

Rather than depreciating credibility in Paganini's ability as an instrumentalist, my deductions aim at making the tricks attributed to the Genoan violinist all the more believable. Under a more exact musicological profile, the raving statements Paganini made here and there as he roamed around Europe, appear as metaphors of his complex musical personality. In other words, Paganini never spoke in bad faith; rather, he kept his secret just as an illusionist conceals reality. By giving the spectator the impression of being in contact with the reality of a *pure* violinist, he only appeared to be *acting* like a violinist.. Indeed, he clearly thought as a guitarist does and, thus, in a way that led listeners astray.

What I have stated ought to induce us to think that it would certainly be very useful and advantageous for a string instrumentalist to carry out (as we have already supposed

Paganini most likely did) *transpositions* of adequate technical exercises from the guitar to the violin, viola and cello. For violinists and violists, a valid system might be practising on a *mezza chitarra* (one with a diapason of max. 50cm) which are easy to find on the market, tuning it at fifths intervals. Inspired by Paganini, I have called this instrument *architarra* or string-guitar (from *archi* meaning strings, and *chitarra*, meaning guitar), as it is an evident synthesis of those two types of instruments; the difference in size between it and the viola is in fact minimal (Table I). It is obviously to be used for studying only. Here are its main features:

- 1) it uses guitar chords whose tension is greater than that of string instruments;
- 2) the spaces between the half tones are greater than those on the viola; therefore, when doing exercises, one must be very careful and skilled so as to avoid injuring the left hand, causing tendinitis and the harmful stiffening of the muscles;
- 3) it utilizes the *capotasto* which makes it possible to reduce the extension of the fingerboard as much as one wishes in order to simplify the exercises, especially for beginners (Table II);
- 4) being a "tempered" instrument, it has the doubtless advantage of making it possible to check beforehand the intonation of exercises that will later be taken up again on the violin, viola or cello. The *architarra* can, indeed, be used by cellists, too, by tuning a *normal* guitar at fifths intervals.

I believe that the application of a technique that makes the left hand as agile as possible is of fundamental and inexorable importance. I personally prefer the one suggested by Yehudi Menuhin in his treatise *The Violin* and by him picturesquely defined as *cat steps*: every time a finger is pressed down, the remaining fingers of the left hand are raised; the chord is released just in the interval when two fingers alternate in pressing it down one after the other. In this way one avoids a break in the continuity of sounds between one note and the following, besides preventing the needless stiffening of the left hand. As an example, observe the succession of the fingers of the left hand 1st, 2nd, 3rd, 4th (Tables III, IV, V and VI). You will notice how, the pressing down of a finger corresponds every time to the raising of the knuckles as well as of the other fingers.

Theoretical Basis for the Method

This method is the demonstration of the concrete possibility of comparative interaction between the technique for guitar and that for string instruments; indeed, the transfer of technically elective prerogatives from one type of instrument to another constitutes the priority objective of this work.

The novelty of this system lies in the fact that every note is defined in its relation to another note bichords within a *formula* composed of two variations both characterised by the same intervals between the fingers. Also when the positions are changed, the distance interval between the fingers of each variation remains unchanged. This is where guidoniana definition of "Mutations" given to the method derives from, as every variation is transposed onto different tones, yet always remains the same.

In the position changes, the last figure of the first variation is the reference point for the upward movements whereas the last finger of the second variation is the reference point for the changes in the downward position. This guarantees the psychological advantage of providing the performer with the possibility of constantly *holding on* to real reference points.

Indeed, with practice, the *fingerboard* of the string instrument will gradually tend to appear in his mind as a sort of "grid of reference points"; especially if at the same time he/she practices on the architarra it will become assimilated into the concrete reality of the fingerboard of the guitar which is subdivided into keys.

First of all, I would like to point out that those who learn to play string instruments mainly base themselves on parametres of hearing and motoric: 1) at first, they listen to sounds and internalize them, 2) then they perform them. Guitarists, on the other hand, apply the visual-motor approach: 1) the optical perception of the positions of the notes on the fingerboard, 2) execution.

As I have already said, I believe that Paganini experimented with a sort of synergistical overlapping of his mastery of the guitar and the violin. He succeeded in achieving an internalized *vision* of the fingerboard of the violin which may in some ways be visited as the fingerboards of the guitar which is subdivided into keys. Thus, he managed to obtain advantages which can be explained today by neurophysiology and psychology.

In the light of modern experimental data, it may be said that Paganini's achievements on the guitar were transformed into a proprioceptive or somato-sensorial sensibility which is what occurs in the interionalized vision of reality of a blind person. In other words, just as the blind person "studies" his environment in everyday life, counting one step after another, one gesture after another, measuring the distance between himself and the objects around him, the player of a string instrument ought to proceed with movements that are always guided and

regular, similar to what a guitarist does when looks at the position of his fingers, placing them confidently on the appropriate keys.

The muscular system, including hands and fingers, is not merely an organ that make movement possible; it is also a sensory organ like sight and therefore it can transmit a deep sensibility to the brain. Our sense of movement relies on signals coming from the tendons, muscles and joints thanks to groups of somatic *receptors* called *mechanoceptors*. Our proprioceptive sensibility enables us to feel, for example, the position our fingers are in, also in relation to external objects, even with our eyes closed.

One of the founders of modern neurophysiology, Charles Sherrington, demonstrated how muscle reflexes are characterised by two distinct antagonistic moments: stimulation and inhibition. These two systems in turn lead to centrally controlled processes which modulate every movement. That is to say, in the course of our development, the brain builds up some internal models of our body *engram* and, by combining them, it transforms them into action patterns in relation to the outside world. In this way, the sequence of movements is more easily translated into visual and motormnemonic *engrams* which will constitute the lasting traces that can later be recalled.

Sherrington's studies on apes have also shown that, when a reward is at stake. parts of the brain of these animals become active already before the movement is carried out. The concept according to which the motor cortex anticipates the parameters of force is of crucial importance to our hypothesis. In fact, in the suggested exercises when it is possible to anticipate both the note and the position of the finger that is going to carry out the next change of position, the somatic registration of the movement is also anticipated as a consequence.

As stated before, any learning process implies the retention of *mnemonic* traces that make it possible for experiences to be recalled. However, every recalling results in a variation and a weakening of the initial experience. The theory of the *distortion* of the *mnemonic* trace formulated by Wulf (1922) reveals how memories tend to (1) *level off* irregularities; (2) *accentuate* the elements that are more striking; and (3) *assimilate* experiences into a concept of already acquired *normality*.

The application of the exercises on the *architarra*, aims at reinforcing the dexterity of the left hand because of the greater effort required. Since the *architarra*, by the accentuates the mechanical difficulty of the exercises, it consequently reinforces the performer's visual and motor memory. Later, the *mnemonic* traces will tend to become weaker according to the levelling processes until they are assimilated into the normality of the positions of a string instrument, that is without leaving any trace of the experimentation on the *architarra* except for a greater sense of self-confidence.

Many of the results of experiments on memory, particularly those conducted by Pribram, make use of analogies with the three-dimensional photographic technique known as *holography*. This is a method that codifies information by distributing a shape on separate plates that can be superimposed (hologram), each containing the entire scene but in a different light. In our case, we might say that the same exercise suggested for the *architarra*, and for the violin constitutes a double hologram of the same thing, that is two reproductions of the same object in *a different light*. It is only through the overlay of the holograms that the image will appear in all its depth and perfection.

Luigi Pentasuglia

MUTATIONS A COMPARATIVE TECHNIQUE FOR THE VIOLIN

Introduction to Chapters I and II

- This method basically uses the 24 possible variations of fingering for the left hand , as pointed out in every exercise above the key.

- Bow strokes. As much as it is the aim of this method to develop the agility and dexterity of the left hand, this does not mean that it belittles the equally fundamental role of the bow. I would rather leave it to performers and teachers to freely choose their bow strokes. In this way, they will be able to use them as they see most fitting.

- In the 12 units of the first chapter, each pair of *variations* is presented in three different versions of fingering, marked respectively by the following intervals :

fingers of the left hand	1 2 3 4	or 1 2 3 4	or 1 2 3 4
interval	s t t	t s t	t t s

The. "t " stands for tone and the "s" for semitone.

- As opposed to the exercises in the first chapter, the ones in the second make use of *combined variations*; moreover, the relationship between the fingers is closer, i.e. semitones.

1	2	3	4
	s	s	s

- Each pair of variations is always presented in the first position and successively repeated following the system of *guided* position changes.

- Position changes. As far as the exercises involving position changes are concerned, these are made up of 2 complementary variations marked by their respective serial numbers followed by the letters "a," and "b". For instance, while the " 1 a" variation moves upwards, the "2b" variation moves downwards.

- Prior to making a position change, it is of fundamental importance to mentally register the distance between the point of incidence on the fingerboard of the last finger of the variation at the same time as the position of the first finger of the same variation that is about to reach it (Sherrington). Thus, if one considers, for example, the upward movement of the "1 - 2 -4 - 3 " variation, it will be necessary to mentally register the positions of the 1st and 3rd finger before the position/change which will move the first finger to the place of the third, as illustrated below:

<u>1</u>	2	4	3			
	<u>1</u>	2	4	<u>3</u>		
		<u>1</u>	2	4	3	
					etc.	

- Once the exercises with position changes beginning with the 1st position are *automatized*, they will have to be presented again starting with the *half position*. Vice versa, those starting with *half position* will also have to be studied starting with the first position.
- *Bichords*. In order to have a better control over intonation, in these exercises it will be useful to apply the *bichord* technique. The following examples serve as illustrations for exercises 1,2,3,4,5 and 6 in the 1st Unit.