

## SAVART'S VIOLIN.

The great object of this philosopher's researches was to determine what were the essential elements of the violin, and what were merely ornamental or empirical details. On considering the principle of the instrument, he arrived at the opinion that the vaulted or curved form of the face and back is not a necessary part of the structure. In the experimental violin which he constructed, he employed flat surfaces of very thin wood. The face and back were each formed of two pieces, similar and equal to each other,—2 3-4 lines thick at one edge, and gradually tapering towards the other edge, which was about one line thick; the thick edges of the two were then joined together. The next peculiarity which we may mention is, that the sides of the instrument were straight instead of being fancifully curved, as in ordinary violins. The reason for this change was, that the sides might enter into undisturbed vibration from corner to corner of the instrument, and thus aid the sound, which is prevented in the common construction. The form of the instrument was that of a trapezium, or four-sided figure, of which the end near the handle was shorter than the remote end. There is, in common violins, a bar, called the bar of harmony, passing along the under surface of the face of the instrument, for the purpose of strengthening it. This bar is placed a little on one side of the middle line or axis of the instrument, and the sounding-post, or *soul*, is placed at a short distance on the other side. Now this is a defective arrangement, as the bar stiffens, and retards the vibration of one side of the axis more than of the other. Savart, therefore, placed his bar of harmony along the central axis, and thus equalized the vibratory power on the two sides of it.

The sounding-post has usually been considered as a kind of support for the upper surface, but Savart found that its only effect was to communicate the vibrations from the face to the back of the instrument, and the point at which he fixed the post in his violin was such as to convey the sonorous vibrations more perfectly and energetically from the face to the back of the instrument. An improvement was next made in the perforations of the face of the instrument. Savart covered the two holes on the face of a violin with paper, and found that the sound was very materially injured thereby; this he attributed to the stoppage of communication between the air within the body of the instrument and the external air. Having thus determined what was the real office performed by these holes, he next directed his attention to the form in which they are generally made. This form represents an Italian S; but Savart considered that the margin of such an aperture must necessarily be variously affected in its vibration, according as it coincided with, or was inclined to, the direction of the fibres of the wood. He accordingly made these openings in the form of a parallelogram, that is, the edges were straight and parallel. By this arrangement the fibres and the margins of the holes were in the same direction, and the vibrations of the wood at those parts were rendered more symmetrical, while at the same time fewer fibres were cut.

There can be no doubt that many parts of ordinary violins tend to damp rather than to improve the tones. Accordingly, Savart took every precaution to ensure co-operation in every part of his violin, as much as possible. Before the instrument was put together, he brought the tablets which were to form the face and back into precisely the same vibratory state; so that each one should yield the same sound, and the same nodal distribution of sound on its surface, as the other. He conjectures that the old makers were cognizant of the importance of this adjustment.

Here, then, we see in how many ways Savart's violin differed from those ordinarily constructed. 1st. The tablets were flat. 2d. They were thicker, and therefore stronger than the ordinary curved tablets; their flat form rendering them capable of vibrating more readily. 3d. The bar of harmony was so placed as not to stiffen one-half of the face more than the other. 4th. The *soul*, or sounding-post, was placed so as to convey the vibrations from the upper to the lower tablet more energetically. 5th. The sides of the instrument were made straight, so as to add, by their facility of vibration, to the sonorous effect. 6th. The apertures in the upper tablet were straight instead of curved, so that, while they permitted communication between the internal and external air, they also aided the general effect by the vibration of straight margins.

These being the general points of difference between the common violin and that constructed by Savart, the success of the attempt was soon put to a severe test. M. Lefebvre, the celebrated Parisian violinist, was requested to compare the tone of his best violin with Savart's. The result was, that the old one was found to have more brilliancy, but the new one more evenness of tone. Savart remarks, that many of the best violins are more insensible to some notes than to others. This he attributes to the circumstance that, through the bad adjustment of the bar, post, etc. the facility of vibrating in accordance with some notes is less than with others; whereas, in his own instrument, freedom and facility of vibration were provided for in every way. When the old violin belonging to Lefebvre and the new one of Savart were played alternately in an adjoining apartment, the tones of the two could not be distinguished from each other, except by a little more sweetness in the new one.

This was probably the first attempt to reduce fiddle-making to scientific principles; and the success which attended it ought to

encourage similar efforts. Savart made many violins such as we have described, which had no pretensions to elegance or high finish, but all possessing the desirable qualities which we are in the habit of attributing to the "good old" violins. Should any of our readers be of a mechanical turn, they might construct good violins at the cost of a few shillings, by attention to the main points of difference between the common instruments and those above described; all of which latter were made by Savart's own hands.—*Tomlinson's Manual of Natural Philosophy.*

From Fisher's Drawing Room Scrap Book for 1839.

## IT IS FINISHED.

It is finished! all is done  
As the eternal Father willed;  
Now his well-beloved Son  
Hath his gracious word fulfilled.  
Even he who runs may read  
Here accomplished what was said,  
That the woman's promised seed,  
Yet should bruise the serpent's head.

It is finished! Needs no more  
Blood of heifer, goat, or ram,  
Typical in days of yore  
Of the one incarnate Lamb!  
Lamb of God! for sinners slain,  
Thou the curse of sin hast braved;  
Braved and borne it—not in vain  
Thou hast died—and man is saved.

It is finished! wrath of men  
Here hath wrought and done its worst;  
Still subservient to his plan,  
Greatest, wisest, best, and first.  
God shall magnify his praise  
By that very act of shame;  
And, through hatred's hellish ways,  
He shall glorify his name.

It is finished! from the tree  
Where the Lord of life hath died,  
His attendant mourners, see,  
Gently lower the Crucified.  
With a sister's tender care,  
With a more than brother's love,  
Manhood, womanhood, are there,  
Truth's devotedness to prove.

It is finished! by the veil  
Of the temple rent in twain;  
By the yet more fearful tale  
Of the dead unrisen again;  
By that dense and darkened sky,  
By each rent and lifted rock,  
By that last expiring cry,  
Heard amid the earthquake's shock.

It is finished! hear away  
To the Garden-tomb its dead;  
Boast not, Death, thy transient prey,  
Watchers, vain your nightly tread.  
Shining ones are there, who wait  
Till their Lord shall burst his prison,  
To ascend in glorious state.  
It is finished! Christ hath risen.

## SOCRATES AND XANTIPPE.

## OR, A GALLANT DEFENCE OF THE LADIES.

Strange and unaccountable is it that these two names, each in itself a proverb, each an antithesis to the other, should, after a lapse of more than two thousand years, have come down to the present time under auspices as different as were the characters of the individuals whom they once served to designate! How comes it that Socrates should still be held forth as an example to men, of virtue, to husbands of forbearance, while his unfortunate lady serves but as a current by-word for every thing violent in women, usurping and domineering in wives? May not a suspicion be entertained, that too easy a credence has been given alike to the virtues of the philosopher, and the failings of his consort? To remove the prejudice which time has strengthened in favour of the one and in disparagement of the other, appears a hopeless attempt. But some advantages may be derived from contemplating the life of this extraordinary couple, from whose history we learn, that rash and impolitic marriages were not unknown before the Christian era; as an abstract matrimonial speculation, and from its antiquity we may consider it such, this question of respective merit and demerit between Socrates and Xantippe may prove of great importance.

History has not left us in doubt as to the philosopher's personal appearance. He was an ugly little man, with a Calmuck nose, twinkling gray eyes, and a bad expression of countenance. Of his own deformities he was aware, and, in his professional capacity of philosopher, affected to derive considerable amusement from his want of external beauty.

Nothing we believe is recorded of Xantippe on this score; but there can be little doubt that if a painter, even one whose name delights in the affix of R. A. were desired to sketch a fancy portrait of her, he would invest her with about as many charms as would barely suffice to redeem a Gorgon from her native loath-

someness; nor is it highly improbable that the critics who frequent the picture galleries would declare his performance to be, to the best of their judgment, a faithful and accurate likeness of the illustrious prototype. And yet how widely would both he and they wander from the truth! Before her marriage, there can be no doubt that Xantippe's face and person were eminently lovely: in the absence of all proof to the contrary, we may even conclude that she was, if not the belle, at least one of the leading belles of Athens; for her husband yielded to no man in ugliness, and when do we see men of his physiognomical stamp marry any but the prettiest women? Her temper was warm and generous, her disposition lively, and her manners gay and playful. In railleury she was an adept, a thorough mistress of repartee, and brilliantly successful in her sallies of polished irony and delicate sarcasm. Such was the woman whom her unkind destiny united to an ugly philosopher of a rectified temper.

Socrates despised the world's opinions and derided its fashions; Xantippe, true to the genius of her sex, was fully impressed with the importance of both. Therefore the husband dressed and behaved like a sloven, while the wife exerted all her energies, and plied all her arts, to subject him to the wholesome and beautifying dominion of the graces. Reasoning from the present to the past, and taking for granted the immutability of female characteristics, we are fully justified in saying that this was the mode of conduct which the well-meaning Xantippe adopted. How are we to suppose that the philosopher received his wife's coaxings and admonitions? After listening to her observations, he would argue with her upon the ground of her complaints in that cross-examination style of his which the Socratic Boswells record as having been peculiarly grateful to the spirit of the *ci-devant* statuary, and which was certainly enough to drive any but a marble lady into strong hysterics. Perhaps, however, he was not even so ambiguously courteous as this, but merely laughed at her importunity, and went about the town as untidy a figure as ever. Is it to be thought that a woman of refined taste and high spirit, such as was Xantippe, could tamely submit to this contemptuous and philosophic treatment?

We are informed that Socrates did not receive a single penny with his bride. The graces of her mind and body formed the sum total of her marriage-portion. How much light is thrown upon the history of her single state by this little circumstance! Her beauty and accomplishments, added to her wit and vivacity, must, without doubt, have captivated many admirers. Among them there was probably a favoured one, with whom she exchanged vows of endless love and fidelity. But Athenian lovers then were no better than their modern representatives in all civilized countries. Xantippe's swain we may imagine to have been a mercenary dog, whom Plutus seduced from his allegiance to Cupid under the disguise of an heiress. In a moment of pique and disappointment, the hasty young lady, our heroine, gave an affirmative answer to the most important question which could possibly have been put to her by an ugly little philosopher, with a Calmuck nose, and twinkling gray eyes.

It may be objected that all this is but a mere hypothesis, but it is one which derives all but certainty from its evident probability. Let us, however suppose, that the match originated on the lady's side, in a laudable desire of obtaining an establishment of her own; on the gentleman's, in an involuntary submission to charms against whose influence philosophy was unable to defend him. If such were the case, sad indeed was our heroine's lot. The philosopher was troubled with a moral weakness which as a single man he might have humoured *ad libitum*, without inflicting injury upon any but himself. He despised money. Having however once married, he was not likely to conciliate his wife's affections by the advocacy of short commons, nor to preserve them through the medium of a meagre and ill-appointed household. Xantippe was a shrewd woman, and saw very clearly that, with all his philosophy, her husband was a great fool. He had talents, she knew, capable of providing the golden source and means of respectability. Why then not exert them for this wise and legitimate purpose? Of what use was his *Damon*, unless it would pay his butcher's and his baker's bills? Most eloquently and most forcibly would she remonstrate with him, upon the folly of his wasting his instructive breath without receiving a *quid pro quo*, and of giving *gratis* lectures to all the young boobies of Athens. But Socrates was a perfect philosopher, and cared little how domestic matters prospered, provided he were left at liberty to lounge with his idle companions through the groves of Academus, or to *rigmarole* upon abstract questions in the Lyceum.

Unhappy Xantippe! How often did she curse the day when her husband resigned the employment of a statuary, and commenced the profession of a philosopher. In the bitterness of her matronly dissatisfaction, can we be surprised that she should at times assail her husband in terms of keen invective, not unfrequently of undisguised abuse? And when her partner, the man of a rectified temper, listened to her patiently, and answered her with nothing but the irritating smile of resignation, was it an unpardonable offence if she seized the first domestic utensil which came to hand, and did her best to break the little philosopher's head with it? Not a word is said, not a suspicion murmured against the purity of Xantippe's virtue, and yet has her memory been outraged by more abuse than would have sufficed for the most in-