

Trombone Slide Lubrication and other Practical Information for Brass Players in Joseph Fröhlich's *Musikschule* (1813)

Howard Weiner

A question that I have often been asked, and until recently had not been able to answer, is that of what was used by trombone players of earlier times to lubricate their slides. Last year I had an opportunity to examine an original exemplar of Joseph Fröhlich's *Vollständige Theoretisch-practische Musikschule*, and to my surprise the answer to this question practically jumped off the page at me. It is not as though this source was unknown to me: in fact, I have for many years had a photocopy of the section of the *Musikschule* containing the brass instrument methods and have quoted or referred to the trombone method a number of times in various articles. Moreover, a transcription and a translation of Fröhlich's trombone method was published in 1988 by David Guion.¹ However, the long-sought-after answer is not found in the trombone method, but rather in the three-page foreword to the section on brass instruments, which also contains other information and advice for brass players and teachers. For this reason, I thought it opportune to present here this all but unknown source in its entirety.²

Franz Joseph Fröhlich was born in Würzburg on 28 May 1780. At the age of eleven he was accepted into the school of the Julius Hospital, where he was trained by the court musicians Ignaz Franz Xaver Kürzinger and M. Braun. He joined the court orchestra of the prince-bishop of Würzburg as a supernumerary in 1797, becoming a regular member, as a violist, in 1801. Having enrolled at the University of Würzburg in 1798 to study law and philosophy, Fröhlich in 1801 assumed the direction of the Collegium musicum academicum Wirceburgense, which became the Music Institute of the university in 1804. He was named adjunct professor of music in 1811, of aesthetics in 1812, of philosophy and pedagogy in 1818, and full professor in 1821. Relieved of his teaching duties in 1854, he remained director of the Music Institute until 1858. Fröhlich died in Würzburg on 5 January 1862.³

The *Vollständige Theoretisch-practische Musikschule* ("Complete Theoretical-practical Music Method") was published by N. Simrock in Bonn. The first part, the singing method, appeared in 1811, the entire *Musikschule* in one volume as well as separate editions of the twelve methods for the various instruments only two years later, in 1813.⁴ As indicated on the title page, Fröhlich did not write the methods on his own, but "systematically arranged" them "with the aid of the best instructions published until now."⁵ In the "Introduction" ("Einleitung") he elaborated:

Of great help to me were the excellent methods of the Paris Conservatory, the distinguished violoncello method by the famous [Jean-Louis] Duport, the fine voice method by [Johann Friedrich] Schuberth, the detailed remarks

of [Johann Adam] Hiller in addition to those of the famous Abbé Vogler, and the splendid flute method by [Johann George] Tromlitz, as well as the comments of many a music connoisseur and particularly of a number of capable masters in the local court orchestra.⁶

In his trombone method Fröhlich indeed refers to the method by the Parisian trombonist André Braun,⁷ and in his horn method he recommends the “concertos, trios, quartets by [Giovanni] Punto, pieces by [Frederic Nicolas] Duvernoy, and other good masters.”⁸

The foreword to the brass methods is found on pages 2–4 of the third *Abtheilung* or section of the *Musikschule* and bears the heading “General remarks on cup[-mouthpiece] instruments” (see Appendix 1).⁹ The information and advice that Fröhlich provides here is, as far as I can determine, unique for its time and reveals a practical bent informed by experience. He begins by listing the instruments “on which the sound is produced by the rubbing together of the two lips within a cup-like mouthpiece”: horn, trumpet, trombone, and serpent. He also mentions the cornett, but only to say that he does not intend to discuss it, “since it is hardly still in use, especially in orchestras.”

This is followed by a reference to relevant information in the foreword to the second, the woodwind section of the *Musikschule*, which makes a short excursus necessary here: The opening section of the “General remarks on wind instruments on the whole, and reed instruments in particular” is also pertinent for brass players and teachers (see Appendix 2). Here Fröhlich specifies what is important to take into account when considering a prospective pupil: whether the pupil might be faced with health issues as a result of playing the instrument, the pupil’s physique, the form of the lips, etc. And he admonishes that if the pupil does not meet the physical requirements, he should be dissuaded from taking up the instrument. Fröhlich then provides a number of “dos and don’ts”—some of them still represent solid advice, while others seem a bit quaint—and also does not refrain from predicting what might happen if his warnings are ignored:

- Protect the lungs; therefore avoid excitement, vigorous running and riding, and excessive consumption of fiery drinks; that is to say, lead a moderate life conducive to good health and playing. Neglecting this will weaken the lungs, making breathing difficult and depriving the player of the capability of playing entire phrases in one breath.
- Do not practice too long; better more often than too much at one time. Conductors who put wind players through their paces in rehearsals of four to five hours without pause are ignorant of the instruments and are guilty of driving the players prematurely into their graves.
- Do not play after eating or while digesting. The scheduling of rehearsals in the afternoon or even immediately after meals is extremely misguided.
- Do not play when ill or suffering respiratory problems—the lungs will be harmed or even ruined for the rest of one’s life.

- Do not drink immediately after playing when the lungs are still warm (the cause of many a premature death). If the mouth is dry, which is disadvantageous for the embouchure, it is best to rinse it out with an alcoholic liquor, which provides invigoration and new strength to the lips.
- It is easier to play if the instrument is good. Frugality is out of place when buying an instrument.

Leaving the woodwinds and returning again to the foreword of the brass methods, we receive advice specific to those instruments, and indeed concerning the instruments themselves. Here we learn

- that instruments should already be broken-in and in tune with themselves, otherwise everything is a waste of effort: it is possible to adjust a sustained tone by means of the embouchure or, on the horn, the hand in the bell, but this does not work on passing notes and in quick passages.
- that one should try to find an instrument that plays easily in the high range, but also has a full sound in the low range. If this is not possible, the decision should be made on the basis of the pupil's goal: if he intends to become a first trumpet or first horn player, the instrument has to have a good high range, if he wants to be a second player, then the low range is more important.
- that the material of which most of these instruments is made is brass. Some are however made of silver, which is more a matter of luxury, although it does have the advantage that verdigris does not form on it.
- that it is best when the bore is as uninterrupted as possible, since all steps in the bore impede the passage of air, causing heaviness of attack, loss of air, and impurity of tones. Therefore...
- instruments with dents in the tubing are useless, and excessive plugging of punctures with lead is detrimental to the sound.

Fröhlich also takes exception to the insertion of too many crooks or tuning bits in the manner of the *Inventionshorn* and *Inventionstrompete*, particularly since higher keys require narrower tubing, while lower keys require wider tubing, and one instrument is thus hardly appropriate for both. However, he does seem to make a distinction here between *Inventions*-instruments that are lengthened by means of crooks and tuning bits (which strictly speaking are not *Inventions*-instruments) and those that have built-in tuning slides, which he refers to as “tuning forks or trombone slides” (*Stimmgabeln oder Posaunenzüge*). He admits that this latter sort has the advantage of being able to adjust very precisely to the tuning of the other instruments without the use of tuning bits.

He then discusses the use of half- and whole-tone crooks to change the pitch of a horn—noting that this also applies to the trumpet and even to the trombone and serpent—and of tuning bits. In the case of the trombone, he warns against inserting tuning bits between the mouthpiece and the slide, since the tube could become so long that one can

no longer reach the last slide position, and also because the wider bore of the tuning bits leading into the narrower tubes of the slide would cause impurity in the sound. Strangely, Fröhlich does not mention the possibility of a tuning slide on the trombone, although he must have been aware of it from André Braun's trombone method.¹⁰ This is all the more surprising, since he refers to what is basically the same device in connection with the *Inventions*-instruments, and in that context even calls it a "trombone slide." Crooks and tuning bits should in any case fit together as tightly as possible to prevent any leakage of air.

Fröhlich then turns to mouthpieces, which have to be given careful attention because the quality and ease of production of the sound are dependent on them, and also because it is very difficult to change once one has gotten used to a particular mouthpiece. Generally,

- the deeper the cup, the more appropriate for low notes; the shallower the cup, for high notes.
- a backbore that is too narrow causes a small, weak, and unpleasant sound.
- in the case of the horn, it would be advantageous to have two mouthpieces: one with a smaller cup for high pitches, and one with a larger cup for low pitches, but both with the same rim design.

Next, mutes for trumpet and horn are described. The trumpet mute is of wood and makes the instrument sound a whole-tone higher. Horn mutes can be made in various forms and materials, but are usually a hollow sphere of cardboard, approximately six inches in diameter, and have a tube or cone that is inserted into the instrument. In order to be able to employ stopped tones while using the mute, a ball attached to a wire can be engaged to close off the tube.

The final paragraphs of the foreword deal with care and maintenance of the instruments, which should always be kept in "good condition and free of all dust." After playing, the water should be drained completely from the instrument to prevent verdigris, "which is very detrimental to the health of the player as well as to the instrument." When wrapping the mouthpiece shank or tuning bits with paper to insure an air-tight seal—a practice expressly approved by Fröhlich—care should be taken that the paper does not get into the bore and inhibit the flow of air. If this occurs the paper must be cleaned out, "which with the horn, trumpet, and trombone is done by flushing ground flint through the tubes with hot water, and shaking until they are completely clean."

The cleaning instructions are followed by those for repairing dents, for "whoever does not have the possibility of having this done by a skilled instrument maker." But this is certainly not for the faint-hearted: deep dents in narrow tubes can be repaired by soldering a pewter rod to the dent and then pulling upward, which at least removes the worst of the damage. In wider tubes, a small piece of iron wire is dropped in from the bell end, followed by an iron or lead plug with the same diameter as the tube at the damaged spot, and then another piece of iron wire—in the accompanying illustration (see Figure 1) the first piece of wire is 32 mm long x 5.5 mm in diameter, the plug 28 mm long x 19.5

mm in diameter, and the second wire, 36 mm long x 5.5 mm in diameter. After the plug is brought into position by jiggling the instrument, the dent can be carefully hammered out; the plug will then either fall out on its own or has to be knocked out by means of the piece of wire.

After the rather self-evident advice to use the first opportunity to empty out the water if the instrument starts to gurgle, Fröhlich advises that the serpent and the trombone should be taken apart after playing in order to clean them thoroughly, and that dirt should not be allowed to build up in the serpent's holes. And, finally,

it should be especially noted that the [trombone's] slides have to be lubricated with a grease-like substance, which however ought not coagulate, so that they are easy to move, for otherwise one pulls the trombone away from the mouth, and as a result always loses the embouchure.

The best [substance] for this [purpose] is Provence oil, which must be carefully wiped off every two to three days, and replaced with a moderate amount of new [oil].

The term that Fröhlich uses is *Provencer Oehl*. According to *Pierer's Universal-Lexikon* (1857–65), “Provence oil [is] the finest grade of olive oil.”¹¹ And the entry on “olive oil” in the same encyclopedia contains the following information:

The olive trees in Southern France and around Genoa give the best olive oil, which is almost odorless, pale yellow, completely clear, mild-tasting like almond oil, coagulates slightly and burns with a lively flame, is especially used as cooking oil, and is commonly known as Provence oil.¹²

Whether trombonists of even earlier epochs also used olive oil from Provence to lubricate their slides—or if Venetian or Roman trombonists, for example, preferred olive oil from local production—must remain unanswered for the present. Indeed, although this and the other information offered in this hitherto unheeded source may not substantially change the course of historical brass playing, the forewords to the brass and woodwind methods in Joseph Fröhlich's *Vollständige Theoretisch-practische Musikschule* nevertheless afford us an informative and welcome glance at the nuts and bolts of brass playing around 1800.

Howard Weiner, a native of Chicago, studied trombone with Prof. Frank Crisafulli at Northwestern University. In 1978 he moved to Europe where he studied early music at the Schola Cantorum Basiliensis in Basel, Switzerland, and established himself as a freelance musician performing with numerous ensembles and orchestras, including the Edward Tarr Brass Ensemble, the Freiburger Barockorchester, Cappella Coloniensis, the Basel Symphony and Radio Symphony Orchestras, and Ensemble Aventure Freiburg. Weiner has authored several important articles on the history of the trombone and published editions of early trombone

music. From 1997 he was assistant editor and since 2004, co-editor of the *Historic Brass Society Journal*.

NOTES

¹ David Guion, *The Trombone: Its History and Music, 1697–1811* (New York: Gordon and Breach, 1988), 92–117.

² At some point, Christopher Monk had a translation made (by Christopher Walter) of Fröhlich's serpent method and a part of the foreword, but it does not seem to have found wide distribution. (I would like to thank Douglas Yeo for providing me with a copy of this translation.)

³ See *Musik in Geschichte und Gegenwart*, 2nd edn., s.v. "Fröhlich, Franz Joseph" by Dieter Kirsch.

⁴ *Ibid.* Until now the publication date has generally been given as "ca. 1811."

⁵ "Systematisch, mit Benutzung der Besten bisher erschienenen Anweisungen bearbeitet."

⁶ "Vorzüglich kamen mir hierbei die vortrefflichen Schulen des Pariser Conservatoriums, die ausgezeichnete Violoncell Schule des berühmten Duport, die brave Singschule von Schubert, die gründlichen Bemerkungen eines Hiller, nebst jenen des berühmten Abbé Vogler, und die vortreffliche Flötenschule von Tromlitz zu statten, so wie die Bemerkungen manches Kunstkenner, und besonders mehrerer tüchtigen Meister bey der hiesigen Hofkapelle." *Singschule*, p. 3.

⁷ *Posaunen-Schule*, p. 33. See also Howard Weiner, "André Braun's *Gamme et Méthode pour les Trombones*: The Earliest Modern Trombone Method Rediscovered," *Historic Brass Society Journal* 5 (1993): 288–308.

⁸ *Horn-Schule*, p. 20.

⁹ Each of the four sections—singing method, woodwind methods, brass methods, string methods—is paginated separately. It is interesting to note how Fröhlich avoided the problem, also encountered nearly two hundred years later by the founders of the Historic Brass Society and this journal, of having to refer to wooden lip-vibrated aereophones, such as the cornett and the serpent, as "brass" instruments. To be sure, "Historic Cup Instrument Society" really doesn't have quite the right "ring" to it.

¹⁰ See Weiner, "André Braun's *Gamme et Méthode*," 292.

¹¹ "Provencer Öl, die feinste Sorte Olivenöl." *Pierer's Universal-Lexikon*, 4th edn. (Altenburg, 1857–65), s.v. "Provencer Öl." www.zeno.org/Pierer-1857/K/pierer-1857-013-0653 (accessed 8 July 2008). I am indebted to Rudolf Tutz, Innsbruck, for calling my attention to this resource.

¹² "Die Ölbäume in Südfrankreich u. um Genua geben das beste O., welches fast geruchlos, blaßgelb, völlig klar, mild schmeckend, wie Mandelöl ist, leicht gerinnt u. mit lebhafter Flamme brennt, vorzugsweise als Speiseöl benutzt wird u. als Provenceröl am bekanntesten ist." *Pierer's Universal-Lexikon*, s.v. "Olivenöl." www.zeno.org/Pierer-1857/K/pierer-1857-012-0276 (accessed 8 July 2008).

Appendix 1

[English translation]**General remarks
on cup[-mouthpiece] instruments**

In this category belong all those wind instruments on which the sound is produced by the rubbing together of the two lips within a cup-like mouthpiece.

These are:

- 1) the horn,
- 2) the trumpet,
- 3) the trombone,
- 4) the serpent.

The cornetto, which actually also belongs in this category, cannot be discussed here, since it is hardly still in use, especially in orchestras.

The general remarks given on page three concerning wind instruments in general [preceding the woodwind methods of section two of the *Musikschule*; see Appendix 2], about the determination of the pupil's suitability, the amount of practice, of study, and so on, are naturally all valid here, too.

By the same token, here as well as there, one has to make sure, in regard to the instruments, that they are already broken in and that they are in tune [with themselves]. This must be stressed here all the more, since otherwise everything is a waste of effort, for when holding out tones one can help oneself partially by means of the embouchure, partially for some—for example, on the horn—by means of manipulations of the hand, but in passing and in quick passages everything is in vain.

In particular one should seek to obtain an instrument that speaks easily in the high range and also produces a full sound in the low range. If however the instrument lacks one or another of

[original German text]**Allgemeine Bemerkungen
für die Becher-Instrumente.**

Unter diese Rubrik gehören alle jene Blasinstrumente, bey welchen der Ton durch die Reibung der beyden Lippen an einander innerhalb eines becherartigen Mundstückes hervorgebracht wird.

Diese sind:

- 1) Das Horn,
- 2) Die Trompete,
- 3) Die Posaune,
- 4) Der Serpent,

Von dem Zinken, welcher eigentlich auch unter diese Rubrik gehört, kann hier die Rede nicht seyn, indem er wenig mehr, besonders nicht bey Orchestern gebräuchlich ist.

Die den Seite 3 gegebenen allgemeinen Bemerkungen in Hinsicht der Blasinstrumente überhaupt, über die Untersuchung der Qualität des Schülers, die Zeit der Uebung, des Lernens, u.s.w. gelten natürlich alle auch hier.

Eben so muss man auch hier, wie dort, in Rücksicht der Instrumente selbst darauf sehen, dass dieselben schon ausgeblasen seyn, dass sie rein stimmen, was hier um so mehr bemerkt werden muss, als sonst alle angewandte Mühe verloren ist, indem man sich wohl bey dem Aushalten theils durch den Ansatz, theils bey manchen z.B. dem Horn durch die Manipulationen der Hand helfen kann, aber im Vorübergehen und bey geschwinden Stellen alles umsonst ist.

Besonders suche man ein Instrument zu erhalten, welches sowohl die Höhe leicht anspricht, als auch die Tiefe mit Fülle gibt. Fehlt dem Instrumente aber doch eines oder das andere dieser

these things, then one should take into consideration the part the pupil has decided to learn: on the horn, for example, or the trumpet, whether the pupil intends to become a first player or a second player, whereby in the former case the instrument has to be better in the high range, [and] in the latter case, in the low range. Yet it is best to get used to both types, or the so-called “principal,” if at all possible, especially if one wants to perform as a solo wind player, since as a rule all the more recent solo parts are composed in such a manner that a moderate high range is combined with the low range. The usual range is from low C in the bass up into the three-line register.

As far as the usual material of most of the abovementioned instruments is concerned, they are most frequently made of brass, the most suitable type of metal for this purpose. There are, to be sure, such instruments [made] of silver, but this is more a matter of luxury; and the advantage of silver—that verdigris does not form on it—is offset, on the other hand, by a lesser degree of elasticity.

Concerning the form of these instruments, the most perfect is that in which the inner bore continues in the most uninterrupted line as possible, since all steps that interrupt this line impede the passage of the air, causing heaviness of attack, loss of air, and sometimes impurity of the tones. Therefore instruments with many dents or other depressions in the tubing are useless, just as excessive plugging of punctures with lead is detrimental to the conduction of the vibrations and, with that, to a good sound. From this it follows that the insertion of too many so-called crooks or shanks (tuning bits) is also very harmful, especially also in the manner of the so-called *Inventionshorn* and *-trompete*, principally that of the horn. Since the higher pitches require narrower tubes, and the lower [pitches] wider ones—thus for each pitch a separate horn would

Stücke, so nehme man Rücksicht auf den Theil, welchen zu erlernen sich der Schüler festgesetzt hat: Beym Horn z.B. oder der Trompete, ob der Schüler ein Primarius oder Secundarius zu werden gedenket, in welchem ersten Falle natürlich das Instrument besser die Höhe, im 2^{ten} die Tiefe angeben muss. Doch wird man wohl thuen, sich, wenn es anderst möglich ist, an beyde Arten oder das sogenannte Principal zu gewöhnen, besonders, wenn man als Solo Bläser auftreten will, da alle neuern Solo Parthien in der Regel so gesetzt sind, dass sich darin eine mittelmässige Höhe mit Tiefe vereinigt. Gewöhnlich wird von dem tiefen Bass C bis in das 3 gestrichene gesetzt.

Was die bey den meisten der genannten Instrumente gewöhnliche Materie betrifft, so bestehet selbe am häufigsten aus Messing, also der hiezu zweckmässigsten Metallart. Es giebt zwar dergleichen Instrumente von Silber, allein diess ist mehr Sache des Luxus, und das Vortheilhafte des Silbers, dass es keinen Grünspan ansetzt, wird anderer Seits durch die geringere Elastizität desselben geschwächt.

Rücksichtlich der Form dieser Instrumente ist jene die vollkommenste, wenn der innere Cylinder in einer möglichst ununterbrochenen Linie fortläuft, indem alle Absätze, wodurch diese Linie unterbrochen wird, den Durchgang des Windes hindern, so hin eine Schwere im Anblasen, Luftverlust, und mit unter Unreinheit der Töne verursachen. Daher sind Instrumente mit vielen Dallen oder sonstigen Eindrücken in die Röhre nichts nutz, so wie auch das viele Verstopfen der eingefallnen Löcher mit Bley, der Fortpflanzung der Erzitterungen, somit dem guten Tone nachtheilig ist. Hieraus ergibt sich ferner, dass das viele Aufstecken mit den sogenannten Krummbögen oder den Stiftchen (Setzstücken) auch sehr schädlich sey, besonders auch die Art der sogenannten Inventions Horn und Trompeten, hauptsächlich die der Horn [*sic!*].

actually be in order—one can easily understand how disadvantageous it must be playing in all pitches, for example, the low and the high B♭, on one and the same instrument.

Meanwhile, one prefers—so as not to have to drag around so many individual horns for the different keys that may occur—to make a sacrifice for the sake of comfort, all the more since the so-called tuning forks or “trombone slides” [i.e., tuning slides] affixed to these *Inventions-instruments* provide by this means the advantage of being able to adjust very precisely to the tuning of the other instruments, without being forced to take recourse to the troublesome and tonally detrimental insertion of tuning bits. This sort of *Inventionshorn* is therefore the best.

Lacking such a horn, one must either have a separate one for each key or, if one has only a few or several pairs, solve the problem by using so-called crooks (bows). With these, the following has to be taken into consideration.

It is known that the longer the tube, the lower the tone will be. Therefore, in order to lower a higher horn, or to give it a lower tuning by means of lengthening the tube, one makes use of larger or smaller, single or double, curved tubes that are inserted into the instrument, and which are called crooks or bows. The larger crook is usually of such a length that it lowers the instrument by a whole [tone], the smaller [crook], by a semitone. Here and there, two such larger crooks are also combined, by means of which a lowering of two tones is achieved. Thus if one wants, for example, to lower a high-B♭ horn to G, one must insert two crooks—a larger one that lowers the instrument a whole tone to A♭, and a smaller one that lowers the same [instrument] another semitone to G. The same also applies to the trumpet and even also to the trombone

Da die höhern Tonarten engere Röhren, und die tiefern weitere erfordern, für jede Tonart also eigentlich ein eignes Horn gehört, so kann man leicht abnehmen, wie nachtheilig das Einsetzen aller Tonarten z.B. das tiefen und zugleich der hohen b auf einem und eben demselben Instrumente seyn müsse.

Indessen bringt man der Gemächlichkeit, um sich nicht mit so vielen einzelnen Horn bey eintretender Verschiedenheit der Tonarten herumschleppen zu müssen, hierinn um so lieber ein Opfer, als ferner die bey diesen Inventions-Instrumenten angebrachten sogenannten Stimmgabeln, oder Posaunenzüge den Vortheil gewähren, dass man, ohne zu dem beschwerlichen, und dem Tone schädlichen Aufsetzen von Stiften gezwungen zu seyn, durch selbe ganz genau nach den übrigen Instrumenten die Stimmung richten kann. Diese Art von Inventions Horn ist daher die beste.

In Abgang solcher Horn muss man entweder für jede Tonart eigene haben, oder sich, wenn man nur einige oder mehrere Paar hat, mit den sogenannten Bögen (Krummbögen) helfen. Mit diesen hat es folgende Bewandniss.

Es ist bekannt, dass, je länger der Cylinder ist, desto tiefer der Ton werde. Um daher ein höheres Horn zu vertiefen, oder ihm eine tiefere Stimmung durch die Verlängerung des Cylinders zu geben, bedient man sich grösserer und kleinerer, einfacher und doppelter runder Röhren, welche man auf das Instrument steckt, und die man Bögen oder Krummbögen nennt. Der grössere Krummbogen ist gewöhnlich von einer solchen Länge, dass er das Instrument um einen ganzen, der kleinere, dass er es um einen halben Ton vertieft. Hie und da sind auch 2 solcher grösserer Bögen vereinigt, wodurch die Vertiefung um 2 Töne bewirkt wird. Will man also z.B. ein hoch B Horn zu G vertiefen, so muss man 2 Bögen aufstecken, eine grösseren, welcher das Instrument um einen ganzen Ton also zu as, und einen kleineren, welcher dasselbe noch um

and the serpent. One inserts, for example, into a serpent, which in military bands is usually in E \flat , a semitone crook by means of which it is lowered to D as the actual key of this instrument. By inserting similar crooks, one can also lower it to C, although this usually disrupts the proportions of the instrument, thus creating impurity. If the instrument is tuned too low, there is no other solution than to cut it down, thereby shortening the bore; yet, especially with horns, this is not recommended, since the proportions of the instrument can be easily ruined.

If the instrument is only a little too high, one inserts one or several tuning bits, which one should therefore always have on hand in various lengths. This applies to the horn as well as to the trumpet, on which these [tuning bits] render quite good service, [and] indeed often take the place of crooks.

This is also applicable to the trombone, but here one should take care not to insert tuning bits at the mouthpiece, lest one lengthen the tube so much that one is no longer able to reach the last position with the arm, and especially because, through the insertion of the tuning bit at the mouthpiece, the inner bore right at the beginning is wider and immediately thereafter would be narrowed by the thinner tubes that follow, through which an impurity of sound is created.

In any event, one must join the crooks, as well as the tuning bits, very tightly together so that no air, or at least as little as possible, is lost.

So much concerning the instruments themselves. With respect to the mouthpieces of these instruments—to the construction of

einen halben also zu G vertieft. Eben das nämliche gilt auch von der Trompete, auch sogar von der Posaune und dem Serpent. Man steckt z.B. auf einen Serpent, welcher gewöhnlich bey Militär-Musiken im Es steht, einen halben Tonbogen auf, wodurch er dann auf D, als die eigentliche Tonart dieses Instrumentes erniedriget wird. Durchs Aufstecken von dergleichen Bögen kann man denselben auch zu C vertiefen, wodurch aber doch schon meistens das Verhältniss des Instruments gestört, somit Unreinheit erzeugt wird. Stimmt das Instrument zu tief, so ist nicht anderst zu helfen, als wenn man es abschneidet, dadurch den Cylinder verkürzt, doch ist es besonders bey Horn nicht anzurathen, weil sonst leicht die Verhältnisse des Instruments können gestört werden.

Ist das Instrument nicht gar zu hoch, so setzt man eines oder einige Stiftchen auf, welche man daher von verschiedener Grösse immer im Vorrathe haben sollte. Diess gilt sowohl von dem Horn, als der Trompete, bey welcher diess vorzüglich gute Dienste leistet, ja oft die Stelle von Bögen vertritt.

Auch bey der Posaune ist diess anwendbar, aber hier hüte man sich bey dem Mundstücke Stiftchen einzusetzen, indem man sonst den Cylinder zuviel verlängert, so dass man ausser Standes kömmt, den letzten Zug mit dem Arme erreichen zu können, besonders aber, weil durch das Einsetzen des Stiftchens bey dem Mundstücke der innere Cylinder gleich im Anfange weiter, und gleich darauf durch die folgende dünnere Röhre verengt würde, wodurch eine Unreinheit der Töne entsteht.

Ueberhaupt muss man aber die Krummbögen sowohl als die Stiftchen sehr fest zusammenstecken, damit nur keine Luft, oder doch so wenig als möglich verloren geht.

So viel in Rücksicht der Instrumente selbst. Hinsichtlich der Mundstücke dieser Instrumente, auf deren Bau, so wie bey den Rohrinstrumenten,

which careful attention has to be paid, just as on the reed instruments, because the quality of the sound and the lightness of producing the same are dependent upon it, and it is also very difficult to wean oneself from a mouthpiece that one has already become accustomed to—the following general factors can be presumed.

The deeper the cup of a mouthpiece, the more it serves to produce lower tones; the shallower [the cup], the [more it serves to produce] higher tones.

A [back]bore that is too narrow causes a small, weak, and unpleasant sound.

Since in the case of the horn the dimensions of this instrument are so varied and extended that many a tone occurs twice—for example, high B \flat and low B \flat —and the lower tones in any case require a very full embouchure in order to lend them a full sound, just as the high [tones require] a very small [embouchure], it would be good—in those places where the low and high keys are not divided up between two pairs of horn players—to employ two types of mouthpiece, one for the low, one for the high keys, which differ not in terms of the design of the rim, but in terms of the shape of the cup, so that the player's embouchure does not become ruined.

In order to temper the sound of the horn or the trumpet, one uses so-called mutes on them.

The mute for the horn comes in various forms and various materials. It usually consists of a hollow sphere of cardboard or another material, whose diameter measures approximately six inches, and on which there is an open tube or cone that fits into the lower part of the horn near the bell. Through the insertion of this mute, the horn sounds as if it were heard at a great distance, and a *piano* can be reduced to the slightest whiff. So that the hornist does not lose the advantage of stopping while using this mute, however, there is

eine vorzügliche Rücksicht genommen werden muss, weil hievon die Güte des Tons, und die Leichtigkeit in Hervorbringung desselben hauptsächlich abhängt, und es auch sehr hart hält, sich eines Mundstückes zu entwöhnen, auf dem man sich schon eingeblasen hat, lassen sich folgende allgemeine Bestimmungen annehmen.

Je tiefer der Kessel eines Mundstückes ist, desto mehr dient er um tiefere, je seichter derselbe, um höhere Töne hervorzubringen.

Der zu enge Bohrer verursacht einen kleinen schwachen und widrigen Ton.

Da bey dem Horn die Dimensionen dieses Instrumentes so verschieden und ausgedehnt sind, dass mancher Ton zweymal vorkömmt, z.B. hoch B und tief B, und überhaupt die tieferen Töne, um mit Fülle behandelt werden zu können, einen sehr vollen Ansatz, so wie die höheren einen sehr scharfen fordern, so wäre es gut, dass man an jenen Orten, wo nicht 2 Paar Waldhornisten die tiefen und hohen Tonarten theilen, sich zweyerley Mundstücke, eines für die tiefen, eines für die hohen Tonarten bediene, welches sich wohl nicht in Hinsicht des obern zum Ansatz gehörigen Baues, aber in Hinsicht der Structur des Kessels unterscheide, damit nämlich nicht der Ansatz des Bläfers gestört werde.

Um den Ton des Horns oder der Trompete zu mässigen, bedient man sich bey denselben der sogenannten Sordinen.

Die Sordine bey dem Horn ist von verschiedener Form, und von verschiedenem Material. Gewöhnlich besteht sie aus einer hohlen Kugel von Pappe Holz, oder sonst einer Materie, deren Durchmesser ohngefähr 6 Zoll beträgt, und an der sich ein offener Schlauch oder Zapfen befindet, der in den untern Theil des Horns zunächst der Stürze passt. Durch das Einschieben dieses Sordins bekömmt das Horn den Ton als ob es in weiter Entfernung gehört würde, und das Piano kann dabey bis zum schwächsten Hauche

fixed within it a wire with a leather-covered ball attached to it, by means of which the opening of the tube can be covered. This wire comes out of the bottom of the sphere and has a loop by which it can be grasped in order to carry out the stopping.

For the trumpet, this mute is made of a small wooden tube that fits into the bell, through the insertion of which the instrument not only has a weaker sound, and one completely different from the normal trumpet tone, but also usually causes the instrument to rise in pitch by a whole tone.

As far as the rule of keeping the instruments clean is concerned, which is stated above in the general remarks for all types of wind instruments, the observation of the same is particularly important here.

One therefore strives always to keep the instruments in good condition and free of all dust, which easily mixes with the water running through the instrument and thus ruins its proportions.

After playing, one lets the water drain out of the instrument completely, but not so that it can penetrate through the tubes, for then verdigris forms very easily, which is very detrimental to the health of the player as well as to the instrument itself. One should be especially careful when wrapping the mouthpiece or the tuning bits with paper to make them seal better—which, by the way, affords a great advantage for the airtight seal on not very skillfully crafted instruments—that it [the paper] does not get into the tube, whereby the passage of the air would be inhibited. If for any reason this happens, one must clean the

modificirt werden. Damit aber der Hornist bey dem Gebrauche dieses Sordins den Vortheil des Stopfens nicht verliere, hat man innerhalb derselben einen Drath mit einer daran befestigten, mit Leder überzogenen Kugel angebracht, durch welche die Höhlung des Schlauchs verdeckt werden kann. Dieser Drath gehet auf der untern Seite aus der Kugel heraus, und hat eine Oehre zum Anfassen, um damit das Stopfen zu verrichten.

Bey der Trompete besteht diese Sordine aus einer kleinen hölzernen Röhre, welcher in die Stürze der Trompete passt, durch deren Einschieben das Instrument nicht allein einen schwächeren, und einen von dem gewöhnlichen Trompetentone ganz verschiedenen Klang hat, sondern welche auch gewöhnlich verursacht, dass das Instrument als dann um einen ganzen Ton höher stehet.

Was die oben in den allg: Bemerkungen für alle Arten von Blasinstrumenten gegebene Vorschrift des Reinerhaltens der Instrumente betrifft, so ist die Beobachtung derselben hier besonders wichtig.

Man suche daher die Instrumente immer im guten Zustande, und von allem Staube frey zu erhalten, welcher sich leicht [*sic!* recto: sich leicht] mit dem in das Instrument laufenden Wasser vermischt, und so das Verhältniss desselben stört.

Nach dem Blasen lasse man das Wasser aus dem Instrumente ganz ablaufen, aber nicht so dass es durch die Röhren dringe, denn sonst setzt sich leicht Grünspan an, welches der Gesundheit des Spielers so wie dem Instrumente selbst sehr nachtheilig ist. Besonders hüte man sich bey dem gewöhnlichen Umwickeln des Mundstückes oder der Stifte mit Papier, um sie genauer schliessen zu machen, welches übrigens bey nicht ganz fleissig gearbeiteten Instrumenten zum festen Schluss der Luft einen grossen Vortheil gewährt, dass dasselbe nicht in die Röhre komme, wodurch der Durchgang der Luft gehemmt wird. Ist diess der

instrument, which with the horn, trumpet, and trombone is done by flushing ground flint through the tubes with hot water, and shaking it until it is completely clean. If the instrument is damaged with several dents, one must remove them. Whoever does not have the possibility of having this done by a skilled instrument maker can help himself in the following manner. The deeper dents, particularly in the narrower tubes, can be repaired by soldering [onto the dent] a pewter rod that is then pulled up, through which the damaged spot at least loses its deep indentation. For the widest tubes, especially of the horn, one drops a small piece of iron wire (see a [in Figure 1]) into it from the bell end. Then this is followed by a plug (b), which can be made of iron, lead, or in an emergency also of hard wood, and after this a small piece of wire (c) similar to (a). By appropriate jiggling of the instrument, the plug (b), which must have the diameter of the tube at the damaged spot, is tamped down to that spot. With a skillful hand the damaged spot is then hammered out, whereupon the plug (b) either falls out on its own or is brought out by the piece of wire (a) being knocked or tossed back.

While playing, too much water often collects in the instrument, which one quickly notices as a result of the gurgling sound; one therefore takes the first opportunity, for example, at a somewhat longer pause, to let the water out.

With the serpent and the trombone, one takes the pieces apart after playing in order to clean them thoroughly. With the former, one also must be sure that no dirt builds up in the holes, through which the bore is altered and the

Fall aus irgend einer Ursache, so muss man das Instrument ausputzen, welches bey dem Horn, der Trompete und Posaune geschieht, indem man Flinten Schrot mit heissem Wasser durch die Röhren laufen lässt, und solange rüttelt, bis selbe ganz sauber sind. Ist das Instrument durch mehrere Eindrücke beschädiget, so muss man es ausdallen lassen. Wer die Gelegenheit nicht hat, dieses durch einen geschickten Instrumentenmacher verrichten zu lassen, kann sich folgender Art bedienen. Die tieferen Eindrücke, besonders in den engern Röhren, können durch das Aufschmelzen einer Zinnstange, welche alsdann in die Höhe gezogen wird, wodurch die fehlerhafte Stelle doch wenigstens den tiefen Eindruck verliert, gehoben werden. Bey der weitesten Röhre, besonders des Horns, lässt man ein Stückchen Eisendraht Siehe a) von dem Becher in dasselbe fallen. Hiernächst lässt man den Zapfen b) welcher aus Eisen, Bley, im Nothfalle auch aus hartem Holze bestehen kann, nachfolgen, und auf denselben ein dem a) ähnliches Drahtstückchen c). Durch eine angemessene Bewegung des Instruments wird der Zapfen b) welcher die Dicke der Hornröhre an der fehlerhaften Stelle haben muss, bis an selbe hingedrängt. Mit geschickter Hand wird dann die fehlerhafte Stelle herausgehämmert, worauf der Zapfen b) entweder von sich selbst wieder herausfällt, oder durch das Wiederstossen oder Zurückwerfen des Drahtstückes a) herausgebracht wird.

Oeffters sammelt sich während dem Blasen zu viel Wasser in dem Instrumente, welches man durch das Röcheln desselben leicht bemerkt, man benutze daher die erste Gelegenheit, z.B. bey einer etwas längeren Pause, um das Wasser ablaufen zu lassen.

Bey dem Serpent und der Posaune nehme man nach dem Blasen die Stücke auseinander, um sie ganz zu reinigen. Bey ersterem muss man auch darauf sehen, dass sich kein Schmutz an die Löcher gesetzt habe, wodurch das Geböhr verän-

purity of the sound harmed. With the latter, it should be especially noted that the slides have to be lubricated with a grease-like substance, which however ought not to coagulate, so that they are easy to move, for otherwise one pulls the trombone away from the mouth, and as a result always loses the embouchure.

The best [substance] for this [purpose] is Provence oil, which must be carefully wiped off every two to three days, and replaced with a moderate amount of new [oil].

dert, und der Reinheit des Tones geschadet wird. Bey letzterer ist besonders zu bemerken, dass die Züge mit einer fettartigen Materie, welche aber nicht gerinnen darf, so eingeschmiert werden, dass sie sehr leicht zu bewegen sind, denn sonst zieht man sich die Posaune von dem Munde, und verliert daher immer den Ansatz.

Das beste hiezu ist Provencer Oehl, welches alle 2 bis 3 Tage fleißig abgewischt, und mit neuem mässig ersetzt werden muss.

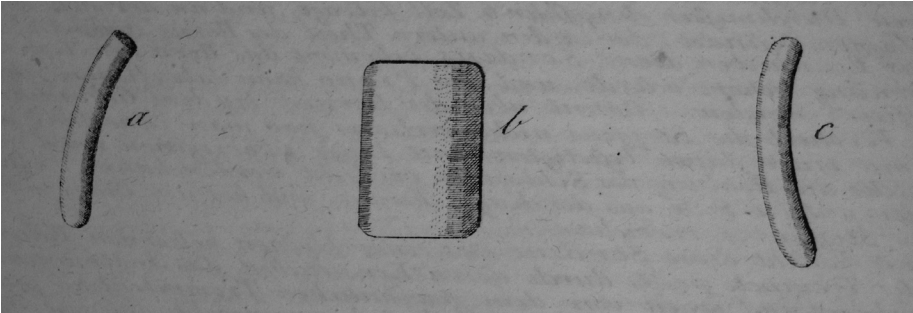


Figure 1: The two wires (a and c) and plug (b) to be used in repairing dents (“Allgemeine Bemerkungen für die Becher Instrumente,” p. 4)

Appendix 2

[English translation]

General remarks on wind instruments on the whole, and reed instruments in particular

The first thing one should ascertain in a pupil who wants to learn a wind instrument is whether his constitution is such that in learning the instrument he does not have anything to fear with regard to his health.

[original German text]

Allgemeine Bemerkungen für die Blasinstrumente überhaupt, und die Rohrinstrumente insbesondere

Das Erste, worauf man vorzüglich, bey dem Schüler, welcher ein Blasinstrument erlernen will, sehen sollte, ist, ob seine Constitution von solcher Art sey, dass derselbe bey Erlernung des Instrumentes nichts in Hinsicht seiner Gesundheit zu befürchten habe.

A generally solid physique, especially a well-formed, highly arched chest, is particularly suited for this. Once this has been ascertained, one must then determine whether the individual anatomy—for example, the form of the lips—is suitable for the instrument that the pupil intends to learn.

If the pupil's anatomy is not advantageous for the instrument to be learned, one must dissuade him from [taking up] the instrument, for in this case the pupil will never accomplish anything good on it.

When however all this too has been ascertained, the following remarks will hopefully not be unwelcome to wind instrumentalists.

a) Since in playing a wind instrument it is above all the respiratory organs that are taxed, the instrumentalist, especially if he has set out to accomplish something significant, must beware of anything that could be harmful to the chest. He must therefore above all avoid too much excitement, vigorous running, too vigorous riding, the excessive consumption of fiery drinks, etc. In short, [he should] lead a moderate life conducive to good health and, with that, also to wind playing. If he neglects this he will be incapable of making progress as a wind player, for as a result of such faults the lungs are weakened, the breath, which is so very important for him, is stunted and difficult, and he will thus be deprived of the capability of playing whole passages—indeed, here and there even of sustaining individual tones—and of giving them the power and nuance that a sensitive performance requires. Hence the decline of many an artist who had already made significant progress; hence the jittering and shaking when sustaining many a tone.

The more notes the singer or wind instrumentalist can execute in one breath, particularly in the expression of gentle and heartfelt [emotions]—just as the violinist is capable of

Ein überhaupt fester Körperbau, besonders eine gut gebaute, hochgewölbte Brust eignet sich vorzüglich hiezu. Ist diess hergestellt, dann sehe man darauf, ob die individuelle Organisation, z. B. der Bau der Lippen für jenes Instrument tauglich sey, welches der Schüler zu erlernen gedenket.

Ist die Organisation des Schülers dem zu erlernenden Instrumente nicht günstig, so muss man ihm von dem Instrumente abrathen, denn in diesem Falle wird der Schüler nie etwas eigentlich Gutes auf demselben zu Stande bringen.

Wenn aber auch alles dieses hergestellt ist, so mögen doch folgende Bemerkungen den Blasinstrumentisten nicht unwillkommen seyn. a) Da bey dem Blasen vorzüglich die Brustwerkzeuge angestrengt werden, so muss der Instrumentalist, besonders wenn er es sich zum Zwecke vorgesteckt hat, irgend etwas Bedeutendes zu leisten, sich vor alles zu hüten, was der Brust selbst schädlich seyn könnte. Er muss daher vor allem zu grosse Erhitzung, starkes Laufen, zu starkes Reiten, den vielen Gebrauch von hitzigen Getränken u.s.w. vermeiden[:] kurz, ein mässiges, der Gesundheit, somit auch dem Blasen dienliches Leben führen. Versäumt er dieses, so ist er nicht im Stande gute Fortschritte als Bläser zu machen, indem durch dergleichen Fehler die Lunge geschwächt, der für denselben so äusserst wichtige Athemzug verkürzt, erschwert, und ihm so die Fähigkeit entrissen wird, ganze Stellen, ja sogar hie und da, einzelne Töne aushalten, und ihnen jene Kraft und Schattierung geben zu können, welche ein geistvoller Vortrag fordert. Daher die Abnahme manches Künstler, der auch schon bedeutente Fortschritte gemacht hatte, daher das Wanken, das Zittern bey dem Aushalten manches Tones.

Je mehr der Sänger oder der Blasinstrumentalist Noten in einem Athemzug, vorzüglich bey dem Ausdrucke des Sanften, Innigen, zu geben, so wie der Geiger in einem Bogenzuge vorzutragen

performing in one bow stroke—the more coherence the rendition acquires, and the greater its virtue. For this reason,

b) practice sessions should not last too long; better more often than too much at one time. If one notices that the embouchure is no longer stable and the lips are too weak, then one should stop. Those who often plague these same wind-instrumentalists through rehearsals of four to five hours without pause, and even demand of them to the very last a good sound and—[lacking both] awareness of how harmful this must be for them and even good will—certainly have no idea about the handling of such instruments. Otherwise they would certainly change a behavior that leads to nothing other than to drive these people prematurely into their graves.

c) After meals, or generally when the period of digestion is not yet over, one should take care not to play. Hence it follows that the common practice of scheduling rehearsals in the afternoon or even holding [them] immediately after meals is extremely misguided.

d) In the event of catarrhal conditions, or when one notices any kind of problem in respiration or in the chest, one should refrain from playing, just as when any external malady, even a minor one, upsets a good embouchure. If one fails to do this, then in the first instance, the chest will be greatly harmed, indeed often even ruined for the rest of one's life. In the second instance, the malady will become even worse and the embouchure disrupted for a longer period. Music directors or other superiors should have exact knowledge of this in order to handle people correctly under such circumstances, and to be able to recognize the reasonable cause of their complaints. Otherwise they [i.e., the directors and superiors] will, on the one hand, act unjustly, indeed often inhumanely, and on the other hand, incur the well-deserved antipathy of their subordinates.

im Stande ist, desto mehr Einheit bekömmt die Darstellung, desto grösser seine Virtu. Daher dörffen

b) Die Uebungen nicht zu lange dauern, lieber öfter, als zu viel auf einmal. Merkt man, dass der Ansatz nicht mehr fest ist, die Lippen zu schwach sind, so setze man aus. Gewiss haben jene, welche die nämlichen Blasinstrumentalisten oft 4 bis 5 Stunden ohne Aufhören durch Proben plagen, und sogar von ihnen noch zuletzt einen guten Ton, und bey ihrem Bewusstsein, wie verderblich diess für sie seyn müsse, noch guten Willen fordern, gar keinen Begriff von der Behandlung solcher Instrumente: sonst würden sie gewiss eine Handlungsweise ändern, welche zu nichts Weiterem führt, als diese Leute frühzeitig in das Grab zu schicken.

c) Nach dem Essen, oder überhaupt, wenn die Verdauungszeit noch nicht vorbeÿ ist, hüte man sich vor das Blasen. Hieraus ergibt sich, wie äusserst gefehlt das Verfahren sey, die Musik=proben meistens auf den Nachmittag zu verlegen, oder wohl gar gleich nach dem Essen zu halten.

d) Bey katharalischen Zuständen, oder wenn man irgend eine Beschwerde in der Respiration oder auf der Brust bemerkt, enthalte man sich des Blasens, so wie wenn irgend ein auch sogar kleines äusserliches Uebel den guten Ansatz stört. Versäumt man dieses, so wird im ersten Falle der Brust sehr geschadet, ja oft dieselbe auf die ganze Lebenszeit hindurch verdorben, im zweyten das Uebel ärger, und der Ansatz oft auf längere Zeit gestöhrt. Die Intendanten der Musik, oder andere Vorgesetzte sollten billig hiervon genaue Kenntniss haben, um Leute in solchen Umständen gehörig behandeln, und den guten Grund ihrer Einwendungen würdigen zu können, indem sie sonst auf der einen Seite ungerecht, ja oft unmenschlich verfahren, auf der anderen sich die verdiente Abneigung ihrer Untergebenen zuziehen.

e) One should be careful not to drink immediately after playing when the lungs are still warm, which for many has been the cause of their premature death. Should one find it necessary, if the mouth is too dry (which brings very many disadvantages to a good embouchure), to moisten [the mouth], one can do this by simply rinsing out the mouth. An alcoholic liquor is admittedly the best [remedy], in that in this way the weakened lips receive more invigoration and new power.

f) It is particularly advantageous if one begins to learn wind instruments in good time, but not too early. For example, the age of thirteen or fourteen [is good], for then the chest becomes stronger as a result of it—it develops [properly], so to speak. One simply has to proceed with moderation and the necessary regard for the individual constitution of the pupil. It is also particularly good—indeed it is necessary right from the beginning—to become used to practicing standing in front of a music stand, with the chest raised.

Playing is greatly facilitated if the instrument to be learned is a good one. Frugality is out of place here...

e) Nehme man sich in Acht, ja nicht gleich nach dem Blasen, wo die Lunge noch erhitzt ist, zu trinken, was bei vielen schon Ursache ihres frühzeitigen Todes war. Sollte man es für nöthig finden, wenn der Mund zu trocken ist, was einem guten Ansatz sehr viel Nachtheile bringt, sich anzufeuchten, so kann man es thun, indem man den Mund bloß ausschwenkt, wobey freylich ein geistiges Getränk am besten ist, indem so die geschwächten Lippen mehr Stärkung, und neue Kraft erhalten.

f) Ist es vorzüglich gut, wenn man bei Zeiten, aber nicht zu frühe anfängt, Blasinstrumente zu erlernen[.] Z.B. im 13^{ten}, 14^{ten} Jahre, denn da erhält die Brust dadurch mehr Stärke, sie bildet sich so zu sagen aus, nur muss man mit Mässigkeit und gehöriger Rücksicht auf die in[di]viduelle Constitution des Lernenden verfahren. Auch vorzüglich gut, ja nothwendig ist es, gleich im Anfange sich zu gewöhnen, gerade vor einem Pulte stehen sich zu üben, mit erhabener Brust.

Eine grosse Erleichterung im Blasen verschafft es, wenn das Instrument selbst, welches zum Erlernen bestimmt ist, gut ist. Oekonomie ist hier am unrechten Orte...

