Article

Saxophonics: An A to J manual of Ornette, the Grafton, and performances of matter

by

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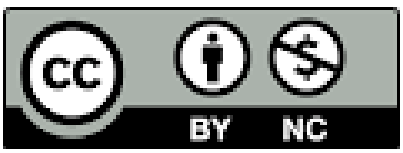


Play Space.

Saxophonics: An A to J manual of Ornette, the Grafton, and performances of matter

This invention relates to saxophones, the saxophone being a musical instrument comprising a tubular body formed with valve apertures, commonly known as tone holes, which are provided with valve seatings, in association with which valves and valve-actuating keys are arranged (Sommaruga, 1948).

Av Petter Frost Fadnes

A

Moisten the reed with saliva by placing the reed on your tongue. Alternatively, soak in lukewarm water for the entire length of 'The Disguise' [from Something Else!!!!, 1958] by Ornette Coleman[1] [2:50].

I look at pictures, feel pre-COVID-nostalgia, and go back to 2013. I am late, and slightly lost. Not for the first time have I underestimated the time it takes to shift from one side of Tokyo to the other – in this case, from Minato-ku by the bay in the East, to Itabashi-ku further northwest of the city. Also, the map function on my phone hardly works here amongst the narrow streets and alleys of the Azusawa district. It is pouring with rain, and I am drenched in sweat, frantically trying to find the Yanagisawa factory. I pass a non-descript garage with a worker hammering the bell of a tenor carcass – I reckon I must be close. The head of international trade, Hidemasa Sato, greets me warmly at the door and takes me into what he calls the test lab of their operation – a small room with worn factory green floors, packed with shelves and wall-fittings filled with old prototypes, crooks, cases, and wooden moulds. The whole factory is just a block of non-descript two-story work-sheds, not at all what I was expecting from one of the most revered saxophone producers in the world. I am here to test a Yanagisawa sopranino, specifically model SN-981. No one makes them as good as Yanagisawa does; at least that is the rumour. The sopranino is about 1/3 shorter than a soprano, and, as opposed to the soprano, which is tuned in Bb, the sopranino is an Eb instrument. My thinking is that it will work well to double with my alto (also Eb). Walking into the test lab, I see five sopraninos laid out on top of their black leather cases on a workbench. A man in a white lab coat holding a clipboard discretely joins us. The task, they explain, is to try all five, and then decide on a preferred instrument. They will then take me on a tour of the grounds before redoing the exercise. Each instrument is assembled from carcass to completion by one single person, Sato explains. This process provides small, but noticeable, individual characteristics, and they want to see whether I end up choosing the same instrument the second time around. The man with the clipboard carefully notes down the serial numbers as I make comments and decide on my favourite. On the tour, I meet the one guy who does the *all* the corking, as well as the guy who does all the engravings, which are done with extreme precision using a small hammer and chisel. The assembly room layout reveals the individual differences I sense in the sopraninos I just tried. All the parts are carefully organized in yellow plastic boxes that are aligned on a long table in the middle of the room. On either side are rows of master craftsmen and women deep in concentration, assembling a horn from a brass carcass to a finished instrument – one craftsperson, one instrument. I remember the rhetorical question I came across in the Yanagisawa press-blurb: 'Take things made by hand and those made by machine. Which do you think is more likely to reflect a spirit of devotion?' (2021).

B

Carefully align the tip of the reed to the tip of the mouthpiece and attach the ligature. It can be fun to try different placements and apply different levels of pressure; this will create subtle differences in sound and reed response.

In 1954, Ornette Coleman purchased a Grafton alto saxophone: an instrument

1 This article grows out of the UK-based, Arts and Humanities Research Council-funded project Silent Form: Embodied Structure in Transition Jazz Performance Practice. This project is concerned with examining the production and impact of Ornette Coleman's music between the late 1950s and mid 1960s, and I am extremely grateful for all the fruitful project-discussions with Mike Fletcher and Nick Gebhardt.

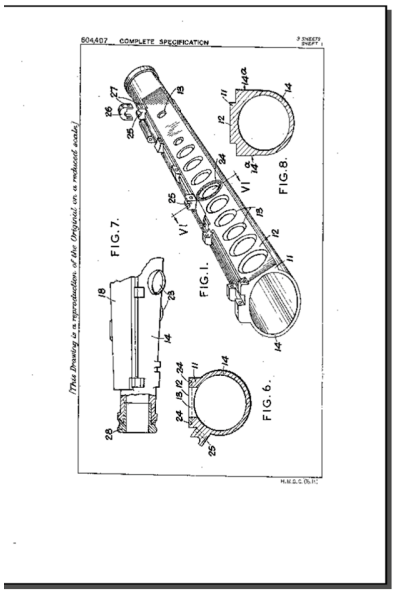
moulded out of an acrylic material, as opposed to one hammered out of yellow brass, red brass, copper, or silver. The material was moulded from a 'powder produced by London-based Imperial Chemical Industries' (Horwood, 1985), the engineering firm was called De La Rue, and the inventor was Hector Sommaruga. The venture was funded and sold as part of the John E. Dallas and Sons Ltd. instrument line, and commercial production ran from 1950 to 1967, with fewer than 3000 horns ever made. The inventive use of acrylic plastics (as well as 'light metal alloys or zinc alloy'), synthetic valve pads, a detachable key mechanism ('reducing the number of pillars from about 30 to 10'), as well as many other innovative details, were approved by The Patent Office London in June 1948.

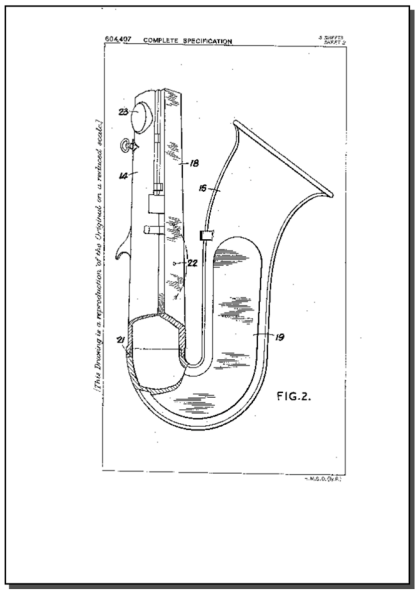
Wind musical instruments. SOMMARUGA, H. Dec. 14, 1945, No. 33958. [Class 88 (ii)] I, HECTOR 80MMARUGA, of Italian Nationality, of 85, Tottenham Court Road, London, W.1, do hereby declare the. nature of this invention to be as follows: – (1948)

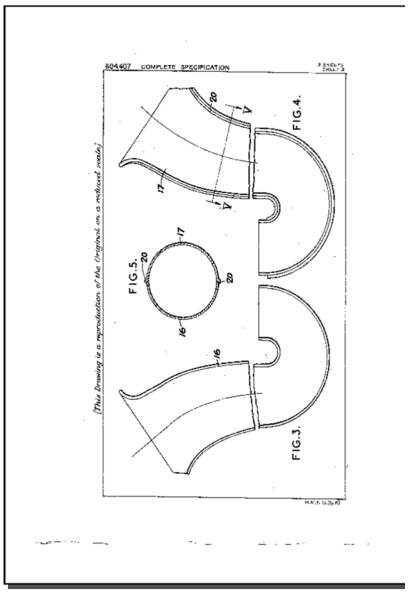
In his application, Sommaruga argued that production would be 'greatly expedited and cheapened' (it ended up retailing at £55, half the price of a regular brass saxophone), and that his horn – patent-worthy and all – would 'possess certain novel and advantageous features'. The instrument's low price is often mentioned in reasonings about how Coleman ended up with a Grafton – including often-cited narratives concerning the penniless musician working as an elevator operator and selling blood to survive. For the money he had, he reasoned that a brand-new instrument would be better than a used one, weighing his decision against a second-hand Selmer. The price issue must have rendered itself irrelevant rather quickly, however. The Graftons tended to break; most repairers would not touch them, and Grafton's own repair shop was in London, meaning Coleman had 'to send for them' from England on a regular basis: 'They're only good for a year the way I play them' (Hentoff, 1962/1975, p. 243). In other words, persisting with the Grafton was related to reasons other than simply the cost of the instrument. He must have preferred it somehow; the feel, the sound, the weight, the look: 'I didn't like it at first, but I figured it would be better to have a new horn anyway. Now I won't play any other' (Hentoff, 1962/1975, p. 243). How many Graftons did Coleman wear out before production ended in 1967, forcing him to switch to brass? Is there a Grafton-by-Coleman graveyard somewhere? In any case, when his England supply dried up, Coleman was then seen with a Selmer Mark VI, the instrument he opted out of when going plastic in the first place. A decade or so later, sometime in the eighties, and perhaps as a homage to his plastic past, he got himself a custom-made Selmer that was white lacquered and all. Sommaruga's patent argument (which actually comprises three separate applications) meticulously makes the case for a need for a completely new type of saxophone, one that consists of material that matches modernity in arts and design, uses modern means of production, and has a low cost.

By virtue of the invention it is possible to manufacture a saxophone possessing all the conventional playing facilities, and moreover with a more pleasing appearance, greater solidity, less liability to break-down, improved tonal qualities – and all this at a greatly reduced cost of production.

He describes a moulded instrument that has all the qualities of modern 3D printing: lightweight, cheap, easy to produce, and can be made without soldering and 'awkwardly placed keys'. It is industrially organic, where all the parts – 'pillars and posts' – are moulded together as one single unity.







Design drawings from Patent Specifications, 'Improvements in or relating to Saxophones', No. 33958.

> According to the invention however, a musical instrument of the type described comprises a body which in part at least is a moulding of suitable mouldable material, as for example plastic. Preferably this body is formed with valve apertures moulded integral with itself.

C

Apply cork grease (alternatively use Vaseline, which is much cheaper) and attach the mouthpiece to the saxophone crook (neck). Be careful not to damage the cork. Tune to 440 or 442 Hz by shifting the mouthpiece in or out [in small steps]. A good tip is to make a little pencil mark on the cork when you're satisfied with the tuning.

In the words of Gamble et al. (2019), new materialism is a vaguely defined, divergent term (they identify three main directions), but which has a common denomination based on problematizing 'the anthropocentric and constructivist orientations of most twentieth-century theory' (p. 111). New materialism, in other words, critiques the humanities' disregard for technology – e.g., the industrial *ontoepistemological* perspectives (see e.g. Barad, 2006) – into the modern human experience. Gamble et al. prefer the approach of *performative*[2] *new materialism* or *performances of matter* in order to void matter/things of meaning outside their activity and to emphasize *the doings* they possess in their interaction with humans. Karen Barad even used the term *intra-action/intra-activity* to shift from sheer causality and make these relations meaningful (see e.g. 2006, p. 139). Additionally, by introducing the Butlerian use of performativity, we the see value of *process* – unsettled, negotiated, evolving, re-invented. This is something musicians can relate to; the connection to the instrument never settles. A saxophone, in other words, is *only* a material entity, and is neither Coleman the man nor his identity or musical outcome *per se*. At the same time, Coleman's saxophone is an essential component of his music, one in which it is hard to imagine Coleman without an instrument.

In a 1961 *Esquire* article, Nat Hentoff referred to Coleman as 'the plastic phenomenon' (1961, p. 82), an inadvertent homage to his tools and his unique, modern stance. What derives from the intra-activity between Coleman and his Grafton becomes the focus of our attention, or at least, we could argue, should be the *focus of our attention*. Such reasoning empowers the saxophone with unique agency ('both active and receptive at once' (Gamble et al., 2019, p. 125)), one in which the outcomes – those particular doings – differ from other instruments, including between different versions of a Yanagisawa sopranino or between a Grafton and a Selmer.

In addition, the historical context and the musical legacy of a specific instrument – e.g., Coleman and the Grafton on *The Shape of Jazz to Come* (1959) – allocates meaning a posteriori, and shows us not only that we play what our instrument allows for, but that the emotional connection to a particular instrument is based on valid presumptions that the horn 'did half the work'[3]. These connections to musical instruments are not merely forms of fetishism (although they can be), but rather artistic/aesthetic connections between humans and machinery that are grafted out of hard work – worn metal and worn muscles, metal springs and tenants, ever-shifting bamboo reeds, and sore lips. The instrument becomes my identity; I involve myself in an industrial development of saxophones back to Antoine-Joseph Sax (1814–1894), and I am utterly dependent on this well-functioning piece of machinery – the craft, the material, the patents – in order to play music, especially since I cannot sing. It is my saxophone, it is matter, seen as 'a fundamentally indeterminate performance or process-in-motion' (Gamble et al., 2019, p. 125).

New materialism is a useful backdrop here, a form of reasoning, dragging matter out of theoretical and reflective inertia. In fact, I see sense in what Barad called the ontoepistemological, and what she rather musically formulates as:

> [...] an appreciation of the intertwining of ethics, knowing, and being—since each intra-action matters, since the possibilities for what the world may become call out in the pause that precedes each breath before a moment comes into being and the world is remade again, because the becoming of the world is a deeply ethical matter (2006, p. 185, my emphases).

Coleman breathed life into the Grafton, but the self-proclaimed 'Tone Poem in Ivory and Gold' (Horwood, 1985) was the enabler of intra-action, the enabler of new worlds. Coleman puts it poetically:

> [...] 'when I had the plastic saxophone it was really nice because you could almost see the shape of the breath of a note. With the metal you can't, the breath just dissolves, in the metal. The plastic was like a vacuum' (Litweiler, 1992, p. 31).

By setting up a vision in which music essentially exits the bell of his saxophone in the shape of his breath, body and machinery become merged, transcending into a musical being. 'The plastic horn is better for me because it responds more completely to the way I blow into it' (Hentoff, 1962/1975, p. 243). Here, perhaps, he was alluding to what long-time collaborator and bass player Charlie Haden referred to after hearing Coleman for the very first time – that he 'played like the human voice' (Goodman & Haden, 2006). Other musicians and critics concur with this, with drummer Shelly Manne hearing 'a person crying or a person laughing' (Hentoff, 1962/1975, p. 242), and photo-

Coleman breathed life into the Grafton, but the self-proclaimed 'Tone Poem in Ivory and Gold' (Horwood, 1985) was the enabler of intra-action, the enabler of new worlds

2 The use of performativity is borrowed from Judith Butler, and what they call failed materialism – however, the difference between failed and new in this context is rather vague (see Gamble et al., 2019, p. 118).

3 The Grafton Charlie Parker played was sold at Christie's for $144,500 in 1994.

grapher/writer Val Wilmer referring to his 'desire to produce 'living' music' (1977/2018, p. 79), a 'highly vocalised "cry"' (ibid, p. 81). Coleman himself hinted at breathing cycles (rhythm) and subtleties of speech and song (microtonality and timbre) as the lyrical qualities he aimed for to give his saxophone (a) voice:

> There are some intervals [...] that carry the human quality if you play them in the right pitch. You can reach into the human sound of a voice on your horn if you're actually hearing and trying to express the warmth of a human voice (Hentoff, 1962/1975, p. 241).

The human nature of breathing – we have to breathe to live – comes through in the material of the instrument. Breathing that would otherwise be 'killed off', disguised by the cold, harsh nature of brass, is reinvigorated by plastics. When discussing the Hegelian use of plasticity, Catherine Malabou highlights the twofold meaning of the adjective plastic, as 'a capacity to receive form and a capacity to produce form' (2005, p. 9). The plasticity of an instrument is the capacity for producing music, but it is also formed by receiving human interaction – human breath, muscles, and will. It is about humans breathing life into machinery, and machinery setting music to the deepest thoughts of humanity; machinery calling out, speaking, singing that what would otherwise remain silent. It is a tone poem recited, to reborrow from the Grafton slogan. Wilmer saw Coleman in action:

> He sits at a rickety table covered in sheets of manuscript paper, writing as he plays. Other instruments lie on the table – a broken saxophone, his trumpet, a couple of violins and bows to go with them. Coleman plays a few bars on his alto then scribbles down what he has just played, using his own individual notation. He picks up his horn again, rocking precariously on a little stool as he blows, pencils slipping all over the table and burying themselves beneath the unwieldy sheets of paper. (1977/2018, p. 79).

D

Hang the assembled saxophone by your neck-strap, and adjust to a comfortable length. Put your right thumb under the thumb-rest and let the rest of your fingers find the 'ivory' (plastic or pearl) keys on your saxophone.

Hector Sommaruga, christened Ettore, was born in Milan in 1904, and, after learning his craft in Paris, permanently settled in London just prior to WWII. In addition to engaging in woodwind craftsmanship, he was a gigging saxophone player (mostly cabarets and dance outfits), a shop owner in Lisbon, and a maker of surgical tools. He despised fascism and escaped from its clutches twice, both in his native Italy and later in Portugal. He ended up running a children's home for Spanish civil war refugees, and later for Jewish refugees, from his home in Sussex. Sommaruga's formative years, both prior to and during WWII, reveal him as both an activist and an idealist. The low cost, robustness, light weight, and sharp design of the Grafton was a genuine attempt to bring a quality saxophone to the people, working against the establishment, against the grain. Coleman was, on several occasions, verbally and physically abused in relation to his playing – disgruntled audiences waiting for him outside a club, or racist cops chasing him out of town. Others, from a critic here (i.e. Tynan, Hobsbawm) to a musician there (i.e. Coltrane, Haden), would see him as 'the next big thing'. A 'messiah' or a 'fraud', according to a contemporary article by Nat Hentoff, depending on who you listened to (1961, p. 82). Unwanted by his peers, unwanted by listeners, a target for abuse, Coleman was a good match for the unpopular Grafton. In fact, a reason for Grafton's failure was partly the coordinated cooperative opposition it received. The US manufacturers actively boycotted and discredited the instrument in fear of its low-cost competition (Charlie Parker played it on tour in Canada, but was not contractually allowed to play it in the US). In Horwood's words:

> A story got around that a Grafton alto in the hands of Ornette Coleman literally fell to pieces in his hands on the stage. In fact, the plastic saxophone was really robust (1985).

In the UK, the inventiveness of the Grafton attracted the interest of quite a few saxophone players, not least John Dankworth, who was part of the development process and who 'elected to use the instrument exclusively for upward of a year' (Horwood, 1985). Dankworth described the playing sensation of the Grafton as having a '"tubby" feel' when holding it, and that the inventive use of piano wire springs meant the action was 'much lighter in tension', making it 'almost impossible to transfer finger dexterity to a conventional instrument without a great deal of reorientation'. The new material, with its different feel between his fingers, took effort and adaptability, and for Dankworth, 'this lack of resistance in the action was something that began to bother me' (Horwood, 1985). Dankworth eventually accepted an endorsement from Paris-made Buffet (including their alto) and switched back to conventional brass.

E

Blow into the horn. With the right assembly [reed (1), ligature (2), crook (3)], it will sound awful for the first five to six years. To go 'pro' [light entertainment in restaurants or free improvisation in front of five people], spend most of your life in a practice room, repeating endlessly the same phrases over and over and over and over and over and over [some variation might be fun].

The repair shop All Brass and Woodwind was my saxophonic Shangri-La as a student in Leeds. At first – between 1992 and 2002 – the shop was situated on the first floor of a narrow, brick shop building near Leeds bridge. This was the same place where, in 1888, Louis Le Prince shot the first film scene in history: a few seconds of horses and carriages, a man crossing the street, people out for a stroll; this was not by Thomas Edison or the Lumiere brothers, but by a French inventor living in Leeds. History can be deceiving. Le Prince had not yet discovered how

Johnny Dankworth discusses technicalities with Hector Sommaruga, inventor of the revolutionary plastic saxophone. Johnny, who holds a prototype of the unique instrument on his lap, was the first musician to play one professionally when he used it at the opening of his Modern Music Club last week.

Melody Maker, May, 1950 (photographer unknown).

to project the film on screen, and subsequently was unable to share his moving images. Two years later, he disappeared after boarding a train in Dijon – his widow Lizzie was convinced Edison had him killed. As I said, I crossed this bridge every time I wanted to call on Dave Walker[4] at the shop, either for minor repairs on my alto or to look at other expensive accessories beyond my student means: shiny silver crooks, vintage mouthpieces, lush cases[5]. In 2002, All Brass (for short) moved across the street from the music college where I was then working, and for six years I rented a parking space from Dave at the back of his shop, which meant I dropped by almost every day. As part of my doctoral work, Dave indulged me in various experimentations with hybrid instruments: corking a trumpet so I could use it with my alto mouthpiece (trumpophone), the same with a trombone for lower pitch (trombophone), and also getting his hands on a keyless alto, which I, of course, bought ('You should come down to the shop, I have something you'll be interested in'). He also introduced me to RooPads (key-pads made from kangaroo leather, which are more durable and have a harder, more immediate feel on the fingers), put a new sound-bar on my alto (for a fuller sound), introduced me to the ATM wireless microphone system (no amplified key-noise due to being suspended on rubber bands), and stripped off the three layers of lacquer Selmer had originally put on my alto (making the sound open up significantly). In recent years, Dave has also started making his own brand of instruments, including the OW Lineage tenor, which has all sorts of clever improvements: a hand-hammered body with a one-piece bell construction (copyright), nickel rods on all long keys (making it light and strong), separate soldered posts, mini ball-constructed octave key work (copyright), new thumb design (copyright), and many other specification details.

4 I am extremely grateful for Dave's contribution and help in writing this article.

5 My main horn – in case you are interested – is a Selmer Super Action Series II, ordered via phone from Enge Musikkinstrumenter in Bergen and shipped to Stavanger in a large carboard box. It was bought with savings that were topped up by my parents in exchange for a haircut. It was an upgrade from an almost unplayable Czech to a glorious Paris edition. This was in 1990, and I was 16.

F

Make sure you are creative, and avoid copying musicians from the past. Alternatively, be shamelessly pastiche in your approach; it might well bring the fortune and fame you seek.

Moving back to Stavanger, Norway was a complete blow to my technical maintenance routine. Whereas in Leeds I just nipped across the street for the tiniest adjustment, I was now stuck in a city that was devoid of a repair person at all, let alone someone of Dave's calibre. Coleman apparently made his own repairs; in fact, he was 'one of the relatively few saxophonists', in Hentoff's words, 'who can take this horn apart and put it together again' (1962/1975, p. 243).

Petter: Octracrook?
Dave: Frankenhorn
P: Hehe, that's pretty good.
Is it possible to keep the thumb-slide? or does it make it too heavy?
D: No, I will keep the slider, as it makes it more interesting.

Let us talk about Frankenhorn (Frank, for short), the instrument Dave developed during the COVID lockdown in the latter half of 2020. Dave had been busy the previous few years, having become the head of production at the Amati factory in Kraslice in the Czech Republic. Under lockdown restrictions, stuck at his shop in Leeds, he suddenly had time on his hands, and so did I.

Dave demonstrating the Frankenhorn. Photo: Dave Walker.

The idea was to create an alto crook that would drop the bottom Bb one octave. The crook would be brass; the Grafton crook was also brass, since apparently plastic tended to squeak. I personally prefer wooden crooks. The one I normally use was made by the Greek instrument maker George Paraschos; it makes my alto a very noticeable 42 grams lighter, but primarily helps offer more projection and less resistance. Dave explains, 'the softer the metal, the warmer the sound' (Walker, 2020) – hard to tell where plastic or palisander wood falls into that category.

G

Make sure you play your heart out [some manuals refer to spirituality and soul], and that the tone of your saxophone reflects how badly damaged you are as a human being.

The bamboo reed constitutes the sound source, set in motion by strong breath and an embouchure containing the airflow. I play Rigotti Wild, 3 (which refers to its thickness), French filed cut. You can also get hold of plastic-coated reeds, which are much more durable than bamboo ones. Coleman stuck to bamboo reeds (as far as I know), but liked the open, free-blowing response of plastics on the rest of his horn. He felt the difference in the material of the horn in the same way that I felt a difference when removing the lacquer on my Selmer:

> There is less resistance than from metal. Also, the notes seem to come out detached, almost like you could see them. What I mean is that notes from a metal instrument include the sounds the metal itself makes when it vibrates. The notes from a plastic horn are purer (Hentoff, 1962/1975, p. 243).

In his book Going for Jazz, Nick Gebhardt (2001) ascribes Coleman's reasoning to the material dimension of the jazz act – making, practising, muscles, pain, effort, body – essentially remaking the instrument 'from the act of playing it' (Gebhardt, 2001, p. 160).

Rather curiously, Cherry remembers when he first met Coleman in a music store in Watts, LA, Coleman was 'buying the thickest reed you can get' (Hentoff, 1962/1975, p. 237). This would normally mean no. 5, which – at least to my ears – makes little sense compared to his sound.
A thick reed creates a soft articulation, breathiness, and large sound, not at all what I associate with Coleman. Cherry could, of course, have met Coleman in an experimental mood – most reed players will attempt different strengths – or it could relate to his stint on a metal mouthpiece (as seen on the cover of The Shape of Jazz to Come (Coleman, 1959)). A metal mouthpiece, which has a longer baffle (upper inside) and smaller chamber (airflow opening), works well in combination with a thicker reed, whilst still sounding piercing and responsive.
Intriguingly, a group of dentists have written about wind instruments' influence on the oral cavity. They describe the origin of discomfort and pain most players feel, but also the connection, the physical strain, and the development of physique:

> Playing a wind instrument causes additional pressure applied on teeth and soft tissues, that may change their position in the dental arch and cause malocclusions or enhance existing disorders in the oral cavity. During exercises, pressure acting on dentition reaches 500 gm (Bluj-Komarnitka, Komarnitki, & Olczak-Kowalczyk, 2014, p. 181).

In fact, I get worried if I cannot feel small cuts, indentions, and calluses at the back of my lower lip. This damage to my mouth has a certain taste in contact with the tip of my tongue; an uplifting taste, proof to self that I am in an active playing period. Roland Barthes' geno-song comes to mind, hearing the body in the music, as opposed to pheno, the fleeing, esoteric and unsubstantial (see Fadnes, 2020). Free jazz, the music Coleman co-formed, came to represent this: 'escap[ing] the tyranny of meaning', as Barthes puts it, bringing jazz back to something real: à la an aesthetic correction from the harmonic snobbery of bebop.
Plastic is new, plastic is modern, not second-hand, not yesterday – of course Coleman had to pick a super-slick, impeccably designed plastic alto; anything else would have been predictable, and Coleman was not predictable. The Shape of Jazz to Come (1959), Tomorrow Is the Question! (1959), and Change of the Century (1960) are all albums about newness; not second-hand horns and mouldy brass, but innovation and modernity. However, writing about Coleman in the early sixties, critic Nat Hentoff noticed how it made him vulnerable: 'The plastic alto has served as a target for attacks on Coleman by several writers who lack the ability to criticize the music on its own terms' (1962/1975, p. 243).
Being at the forefront is hard.
In a 2006 interview, long-time Coleman collaborator and bass player Charlie Haden remembers his first encounter:

> I heard Ornette play the first time at a club called the Haig. I was on a night off. I was playing at the Hillcrest with Paul Bley, and Carla Bley was his wife. That's how I met Carla. And I went to the Haig. Gerry Mulligan was playing there with his band, and this guy comes up to the stage and asks to sit in. They tell him to come up, and he got his alto. It was a plastic — white plastic alto saxophone. And he starts to play, and the whole room lit up for me [makes a 'divine' gesture with him arms and shuts his eyes]. It was so brilliant. And as soon as he started to play, they asked him to stop. So, he put the horn back in the case and started out the back door.

Haden remembers – with awe in his voice – Coleman and the 'white plastic alto saxophone', joined in a Baradian intra-action; the play between them, something 'like a human voice'. Angry, hurt, embarrassed (?), Coleman quickly vanished off stage: 'And so, I missed him. He would disappear into the night' (Goodman & Haden, 2006).

H

Bleeding lips and cuts at the back of your lip from teeth-cuts, tendinitis in both wrists and shot shoulders, are all part of the fun, and a constant reminder that proper art comes out of tormenting yourself as much as possible.

We chat online, and Dave believes he can come up with something for my idea of an octave-dropping crook. Early December 2020, he sends me a video of him playing an alto with a vertical pipe-extended crook, one that is about 30 cm longer than a normal one.

> Early stages but it's starting to come together.
> It's also a slide so you can change the harmonic effects.

A couple of days later:

> Just thinking about it more, I'm going to put a bend on the tube so it will drop down the back of the sax. This way you can slide it with your thumb. (Including a demonstration of the sliding effect.)

It strikes me how much extra weight those few little pipes make. 475 grams heavier than my wooden Paraschos feels strenuous. The muscles at the back of my neck remember exactly how much the horn normally weighs, and this is more, much more. Conversely, Coleman must have been struck with how light the Grafton was, only 2300 gm, compared to my alto, which is 2564 gm (3039 gm with Frank attached). In Coleman's hands, the Grafton had a flute-like quality, piercing, but with a full timbre and loads of overtones. Don Cherry commented on this in the liner notes of Coleman's debut album, Something Else!!!! (1958):

> [...] he uses a plastic alto; it has a drier warmer sound without the ping of the metal. He also has a special mouthpiece that together with the number-one reed he uses has enabled him to develop his tone so that he can control it.

This totally contradicts Cherry's former comment, but makes more sense – although, maintaining tone quality and range on a no. 1 reed is something I thought was near impossible. Light reeds work for beginners (just to get a sound, any sound...), but professional players with a developed playing-physique can easily end up overblowing; the reed either collapsing (closing the airflow into the mouthpiece) or

making the tone sound like vibrating paper, a toy-like kazoo.

The muscles surrounding the rima oris seal the connection between the lips and the mouthpiece/reed. They control the volume of the air stream. Orbicularis oris muscle plays a critical role and fills the lips. Other muscles that play a part in the production of sound include: the buccinator muscle and risorius. The tongue, owing to the contractions of inner and outer muscles controls the air flow and participates in the articulation of sounds. The oral cavity serves as a tunnel through which air from the lungs is transported to the instrument. The teeth, maxilla and the mandible are a framework for the lips, tongue and muscles (Bluj-Komarnitka et al., 2014, p. 180).

What Cherry refers to as Coleman's 'special mouthpiece' might indicate a large facing curve against the reed, allowing the light reed to vibrate freely and not collapse. I contacted saxophone player and mouthpiece-wiz Jody Espina, who I know made a mouthpiece for Coleman. In response, he sent me quotes from a very excited Coleman testing his JodyJazz DV NY model, a metal mouthpiece: 'Jody, you have humanized, what it is to play saxophone' (from personal email, 23.08.21). Hard to top that. Espina has a story to tell, from hanging with Coleman at his flat, exchanging mouthpieces and horns:

When I measured his mouthpiece with my gauges – it had no good facing curve. In other words, it measured as one of the worst mouthpieces I have ever seen. It was a hard rubber Meyer-like piece. He did use a very soft reed which forgave a lot of what was happening with the mouthpiece. When I played it with my harder reed it didn't play well but with a soft reed I could make it work. When he put my mouthpieces on which are very precise and efficient in how they convert the energy that the saxophonist gives into sound, Ornette was blown away.

Ornette told me that when he first picked up the saxophone he sounded exactly like he did now. That is a strange statement, but every single thing about Ornette was different than anyone I had ever met.

I have included a little video that I recorded playing a Grafton. This was in a music shop in the UK. The point of the video is to say that it doesn't really sound that different than a regular saxophone. It was a good saxophone. Making mouthpieces I have come to understand that material is definitely no more than 15% of the sound and often makes less difference than that. It's much more about the geometries etc. If you get those correct than the sound will be similar.

Espina was once involved in doctoral work on material differences in mouthpieces; he asked the candidate to test the exact same cut on '4 to 5 different materials'.

The result was that they sound very, very similar to one another. He had some apps that he used to analyse the sound with and he could see electronic differences in the harmonics etc. But I tell you all that to say that I underestimate the significance of the Grafton in Ornette's sound and I would say that he probably gravitated to it for its uniqueness. But I could definitely be wrong. I would never presume to understand Ornette's thought process.

A light reed and a resistant (large-chambered or poorly made) mouthpiece demand a strong embouchure and lots of air. In Coleman's case, this was obtained and maintained by daily, long practice sessions and nightly gigs. In his youth, he played in a church band and numerous R&B outfits (mainly on tenor). In late-fifties-LA, Coleman (then on alto) and his co-players honed their skills in pianist George Newman's garage or in the apartment of Don Cherry. And in 1968, Coleman rented a NY-Soho loft, which he named the Artist House (see e.g. Golia, 2020). They all represent the spaces he needed access to in order to play as much as possible. In addition, Coleman did endless gigs in which the club owners would push the musicians to the limit:

Six hours a night, six nights a week. Sometimes I go to the club and I can't understand what I feel. 'Am I here? How will I make it through tonight?' (Hentoff, 1962/1975, p. 246).

He must have had enormous stamina on his horn – keeping intensity up for hours and hours. A light reed gives room for pitch bending and microtonality, but puts a heavy demand on embouchure and airflow in order to maintain control. Another important point is that the pitch flexibility that a light reed provides means you have to hear what you are aiming for; otherwise, you will simply sound out of tune. Cherry also underlines this:

He has real control of pitch, and the pitch is so important to him. He can now express on his horn what he hears, and he has a very unusual ear (Coleman, 1958).

A setup like this (i.e., the combination of reed, ligature, and mouthpiece) provides the sound of a wind-player with rapid, immediate articulation (quick air response) and plenty of room to play with pitch (which Coleman did).

I

Make yourself a strong cup of coffee, develop a daily routine, and stick to it for the rest of your life. If you are prone to OCD, it is, of course, easier, but if you're not that lucky, attempt to develop compulsive tendencies as best you can. John Coltrane had a flute in bed to have something to do whilst lying down. You can do it!

We live under COVID restrictions, and it feels like I have hardly left my practice studio for months. Watching Dave's demonstration video of Frank is a poignant reminder that I also belong to an outside world.

P: That's brilliant Dave!
D: That's mk10 lol.
No 11 should be another level.
P: Hehe, can't wait.
D: I do my best work when I'm asleep and dream how to do it, and last night was a breakthrough.
Bending notes, sliding pipes, fluctuating weight (heavy/light), thickness of reeds (heavy/light), all help create plausible adaptabil-

ities of sound, creating forms of plasticity within the tonal, rhythmical, and timbral material. It is the 'sound' of plastic, plastics, and modernity. It is new materialism: material as agency. It is music as non-anthropocentric. It is about the ontoepistemology of the saxophone – the interaction, interplay, and fight between a musician and a mechanical instrument – the near impossible task of making plastic, brass, and wood sing with all the qualities of the human voice.
For my PhD portfolio, I recorded a solo album, This is Bamboo Land, and for the cover, I dismantled a side key on my alto and carefully arranged it with small pieces of meat and fake blood on a metal tray. The music was dismantling the horn, and it was equated to carving pieces of flesh from my own body.
The Grafton was made from a brittle, easily cracked material called Perspex (also called acrylic glass), and the shape was modelled on the Buescher bore (Ingham, 1998). It is Art Deco in its design; clear, grooved plastic key guards against brass and white; over-the-top decadent, but also not shy of showing off as a form of modern technology and a highly processed entity. Under the auspicious title 'Sexy Saxs', David Templeman fetishizes the Grafton's design details:

> Note the smooth, lustrous creamy-white plastic body and especially the wing-shaped key protectors, which suggested that the instrument was about to fly right out of the player's hand (2003, p. 9).

The fetishization of the tangibility of instruments – items crafted by shaping hands and creative minds, tools, and machinery into an artefact that looks and feels complete and has the power to interact with people, with musicians – is part of the bonding process. It also bonds with design cultures, crafts, innovation, and persistence; red lines echoing through the industrial age. The Grafton is English ingenuity – trains, planes, and automobiles, the pioneering Stockton and Darlington Railway, the battle-saving Supermarine Spitfire, and the iconic Mini car. I find an online promo video with Dave; he talks in an engaged and intense manner, mapping out his philosophy:

> So, when I'm actually designing, what I do is that I put their music on, the album, like Jerry Bergonzi […]. I'll put it really loud, it's so loud that, if you were to walk into the room, you'd think 'how does he concentrate with the music that loud?' But what it does is that it puts me into an out-of-body experience. When I'm in an out-of-body experience, I can't actually hear the music at all; I'm just focused. What I'm trying to actually get is the frequency of me as a person, in my actual soul, that I actually put into that horn. And I'm working with them, as their personality, and them as a person. So, people who actually don't understand the Universe, and how the Universe actually works, and how frequencies work – not the frequencies of a saxophone, but the frequencies of you as a person – putting it into the molecules of the actual brass. When I hand someone their saxophone, their instant response is, 'it just sounds like me'! (2020)

Frank brings clarinet-like qualities to the timbre – bass-clarinet-like qualities to be precise –partly shifting my horn from a coned instrument (open saxophone sound) to the dense, woody qualities of a straight tube.

> The most commonly used models of saxophones (e.g., alto and tenor) comprise a long hollow conical body of which about two thirds of the length form the smaller diameter is straight whilst the end of a larger diameter is doubled back to lie adjacent to the straight part; and the back-turned greater part is known as the bell (Sommaruga, 1948).

I played clarinet when I was a child, so the sensation, the vibrations of the un-coned instrument, are appealing and sentimental (although I initially wanted to start on saxophone, but was told my fingers were

Photo: Birgitta Haga Gripsrud, 2003.

A photo of the Frankenhorn before it leaves Dave's workshop for Norway. Photo: Dave Walker.

too small). Coleman started on saxophone and was self-taught. However, in the words of Hentoff (1962/1975), he was an 'inaccurate teacher', unable to match the right pitch to the correct fingering, famously prompting his first band leader to remark, 'He'll never be a saxophone player' (p. 233). Coleman played on his own for two years as a youngster, learning from books, developing his connection to the saxophone slowly, on his own. I feel the new sensation of playing Frank – the vibrations in my head and neck – it feels pleasing, nostalgic; bringing back happy memories, former careless existence as a child, a form of play which is otherwise lost to me.

George McKay (2019), in his chapter entitled Jazz and Disability, argues the case for jazz as a societal misfit, a hybrid, and what Johnson (2011), when specifically referring to the saxophone, calls a miscegenation: between materials, connections, functions, peoples, skills, and backgrounds. It is about jazz as a glorious mess of bodily and material entities refusing to be defined, but it also refers to its dark history of xenophobia and oppression. On a lighter note, McKay uses disability as a symbol for flourishing creativity – enabling instead of disabling – under the worst of hardships (economic, physical, misogynistic, racial, cultural), reminding us case-by-case – e.g., Buddy Bolden (mental health), Django Reinhart (damaged left hand), Connie Boswell (paralysis) – how some artists develop a unique sound through forms of limitation. Uniqueness, in other words, not despite a disability, but because of it. Not least, McKay dwells on the virtuoso blind (later partly paralysed) saxophone player Rahsaan Roland Kirk:

> **"It is about jazz as a glorious mess of bodily and material entities refusing to be defined, but it also refers to its dark history of xenophobia and oppression**

It is well-known that Kirk constructed and adapted his own instruments. The stritch and the manzello were two of his own wind instruments (each a kind of modified saxophone), and a third one was what he called 'black mystery pipes', which, rather wonderfully, consisted of a piece of bamboo and some hosepipe (p. 181).

Was Coleman actively seeking out an instrument that—through its difference, its limitations, its fragility – left him honing his skills and his sound through an instrument refusing him access to already 'well-trodden pasts', making him unable to reproduce clichés of former heroes?

Innovation through crippling, what McKay calls jazz's 'embrace of its inner crip' (p. 183), brings us nicely to COVID and the musically disabling months of lockdown and isolation. Perhaps we seek this out more than we think … in the words of the dentists:

> Musical instruments may cause different changes in dentition, oral cavity mucosa, muscles and temporomandibular joint (TMJ). The range and degree of those changes depends mainly on the intensity of play and the type of wind instrument (Bluj-Komarnitka et al., 2014, p. 180).

As little as we choose to live under a pandemic, Kirk did not choose blindness and paralysis, but presumably ended up sounding unique because of it. That Coleman chose the Grafton over the Selmer is baffling – even a second-hand one – but his choice nevertheless deliberately and forcibly set him on a new path. In fact, I suspect he sensed that in the instrument the moment he put his hands on it, saying to himself in his mellow, subdued voice: this is not normal, this instrument won't allow for normality.

J

As the famous Irish band leader [redacted] once uttered whilst counting in the orchestra [4/4]:

'Don't [1] fuck [2] it [3] up!' [4]

Coming back into the 'research lab' at the Yanagisawa factory, I am told to redo the exercise and pick a favourite out of the five instruments on the table. My two 'audience members' seem content with me taking my time, and I manage to single out a favourite without articulating very well how I made my choice. The man with the clipboard confers with Mr Sato, and they confirm that it is the same horn as from the first round. They seem satisfied with the test. The man in the lab coat takes away the instrument to adjust the mechanism perfectly; 'it is now good, but he will make it amazing', Mr Sato explains. I sit with that instrument in my lap now; there is a story connected to it.

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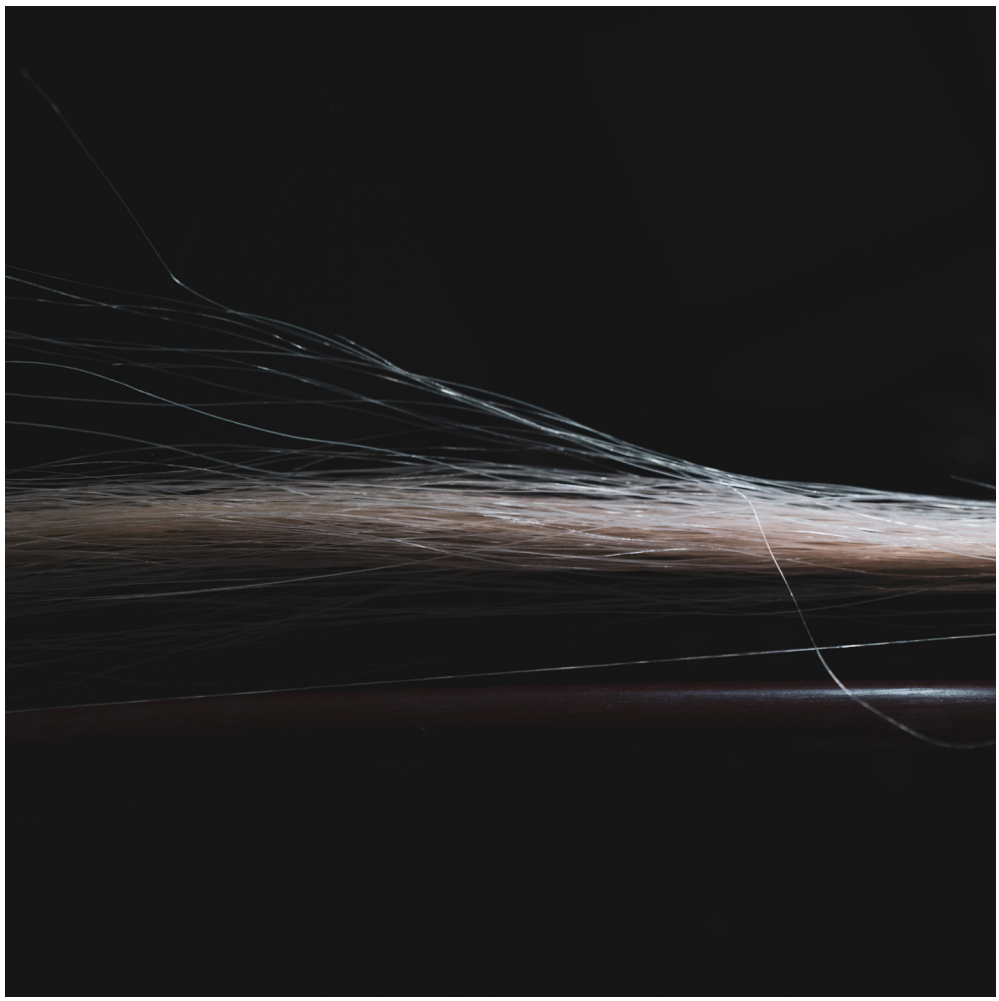

Foto: Tord F Paulsen.