

# The Handpan Companion

*A hitchhiker's guide through the history, physics, and theory of the handpan, accompanied by a website of more than 70 interviews spanning over 1,200 pages, from veterans and newcomers alike. Through their interviews, handpanists shared deeply personal stories, practical advice, collective wisdom and cross-cultural reflections on an instrument developed globally, outside any tradition. It is my hope that the website and book will grow as more knowledge and voices are added to the collective pool of experience and wisdom, and be maintained as living sources of truth and inspiration for many years to come.*

**Written by Jacob T. Whitt**

# What is The Handpan Companion?

I hope that my book will serve as an accessible guidebook for anyone who has discovered the handpan and doesn't know where to begin to look for reliably accurate information about it. If you've already searched online and ended up more confused or overwhelmed by a flood of jargon terms and arbitrary scale names than when you started, you're not alone! Being new to the handpan comes with a *flood of questions*, and that's *completely* normal, don't worry! Each handpanist began exactly where you are right now, asking the same things and likely not knowing where to look or what to try first.

Within the coming pages, you'll find simple, easy-to-understand answers to it all. I'm confident this book will serve you well in your journey toward a greater understanding, better performance on and deeper appreciation for Hang-type instruments. Even if you're not new to the instrument, I can guarantee you there are new things to learn that you probably didn't know existed or were a thing people did!

Come with me, turn the page, and I'll show you that all the wondrous parts of this instrument and its community are not nearly as complicated or scary as they may seem at first glance! I promise that no premium subscriptions, micro-purchases, email lists, TikTok dances, algorithms or NFTs will be involved: just wholesome, offline, relaxing fun!

# Why is The Handpan Companion?

The story of why I began this endeavor is funny. Back in December 2022, a crypto bro in a café alleged, "*AI is so powerful now that ChatGPT can write entire e-books for you to sell as passive income on Amazon and you can have passive income to do whatever you want.*" He never returned to the co-working café, so he obviously struck gold selling e-books. Meanwhile, I tested his ridiculous idea. When I thought about what kind of book I'd write, and being as handpan-obsessed as I am, the answer was obvious. I also realized that nobody had written a *book* about these instruments. As you'd expect, AI didn't know anything and quoted wikipedia or made ridiculous claims like "*Hindus and Buddhists are using the handpan in their religious ceremonies.*"

An unexpected and curious result from my attempt to prove crypto bro wrong was that suddenly I felt deeply motivated to actually write this book myself. A few days later, I was drafting a table of contents based on what I knew so far about the creation process, physics and layout theory. After tossing around ideas for names, I landed on “*The Handpan Companion*,” and my “hitchhiker’s guide to the handpan” was born! I intended from the very beginning for this book to be a “layman’s terms overview” of the history, physics and theory, as well as including communal experiences and knowledge surrounding these magical instruments via interviews, since most historical and deeper physics knowledge has been solely in people’s heads, as the online forums of old don’t exist anymore. This brief guide is by no means a deep-dive PhD thesis on the Hang and handpans, *though one does exist!* It was written by Ahkok Chun-Kwok Wong, if you care to read it here: [[Replace this with a QR code for the website link: The History, Development and Global Dissemination of the Hang/Handpan](#)]

Eventually, I reached a point where I wasn’t learning anything I didn’t already know about handpans themselves. I realized it would be necessary to contact handpanists from as far back in time as I could manage, from the first few waves of makers (*also commonly called tuners or builders*) and performers if possible, to start reaching out for more niche details. *Who first added bottom shell notes? Who pioneered the first mutant pans and low dings below B2? What were the early days and festivals/gatherings like?*

As I began compiling a list of all the people who I thought might know these things, I had a new idea: It would be valuable and inspiring to read people’s personal stories and experiences with the handpan and how they became the musicians/makers they are today. Their advice and perspectives on the handpan could guide future handpanists in everything from buying and composing to even building their own. This sounded like a really interesting addition that I was sure would excite people in the community to read.

The idea had quickly evolved into a blueprint for a handpan repository of easy-to-understand explanations of as much of the wisdom and knowledge that I could manage to collect, all in one easy-to-find place. Since the closure of **handpan.org**, there hasn’t been a single source of truth for our community and this instrument, and I think that is contributing to a lot of the buyer’s remorse that new players have due to making uninformed decisions when ordering custom pans or, more commonly, buying cheaply made imitations (anything off

Amazon or Aliexpress or other non-artisan storefronts) which also lead to the current oversaturation in the secondhand markets.

This book grew into something much longer, more deeply emotional, and more philosophy packed than I'd imagined it would (not to mention the countless musical rabbit holes I've been sent down). Seventy-or-so interviews later, as I write this introduction, I'm finishing the last of the rough edits and corrections with the people interviewed via phone to be approved for printing in the final manuscript, and sadly losing many who haven't responded for months or over a year, but the project must continue. It's taken *so long* and been quite a tedious process of translation and summarizing. I really hope that whatever format this ends up being released in, it helps people in the ways I dreamed it would when I began.

I've made so many new friends and acquaintances. I learned heaps more about the creation process that I was shocked I wasn't aware of, especially for how much of a persistently curious nerd I've been, talking to makers for hours and weeks long before I ever started the book. I listened to different cultural, emotional and philosophical perspectives on the handpan (also on music and life in general) from people from all corners of the Earth. Every interview was interesting and surprised or inspired me, both as a musician and in my life in general.

I often say that this instrument has changed my life, and the interviewing and research process for this book has taken it many levels deeper. I'm deeply grateful for everything I've experienced and learned so far. Let's end here and get to the good bits!

# The History of the Handpan

In this first section of the book, I'll cover the unconventional origins of the steelpan, a story that spans continents, colonial resistance, acoustic innovation, and artistic experimentation and expression of the collective sentiment of resilience an oppressed people. Next, PANArt and the Hang's inception and global spread through the early 2000's. Then, we'll see how the handpan evolved out of the supply and demand for the early Hang and grew into what it is today. The story of the Hang and handpan overall is especially interesting as no other instruments have been unhindered by any particular religion, nation, or tradition. It's one of the few instruments whose global dissemination was so immediate, widespread, and organically culture-transcending. We'll learn about some of the historical firsts with the handpan, as well as what global events began popping up around the instrument. The final part we'll cover is the ongoing legal battle between PANArt and Handpan Community United, which has left the community uncertain about the future of the legality and existence of handpans as we know them today.

I'm also going to continue to use (and hopefully globally establish) a name for us all that just *makes sense*: **handpanist**. Like a pianist or guitarist, this word should be used for all performers playing this instrument. "Handpan player" or saying "players" is wordy and dorky, making me cringe more and more every time I hear it. Why not use the same grammatic structure that has existed for centuries with almost every other instrument that phonetically allows for its use? You'll see me using this term through the book, or using the word "performer" to differentiate between those who build (and also sometimes play when they get a free moment!) handpans vs. those who *only play* them. It's my hope that the term "handpanist" becomes the commonplace name we all use, especially when it can easily translate into other languages (*handpanista, hanpaniste, etc.*).

Many people assume upon first encounter that the handpan must be ancient based on its sound, shape and unfamiliarity. The truth is while the handpan may look like an artifact from the past, its story is pure 21st century, more diverse than most people realize and only just begun! This section of the book traces that arc, from the roots of melodic steel instruments to the invention of one of the newest instruments on Earth that has inspired an entirely new family of instruments and a global movement around them. It's only been 25 years (as I write this) since the Hang was publicly released, so it's a brief but quite dense history, with too many details to

include for the scope of this book, though I will do my best to highlight important moments and milestones.

# The Steelpan of Trinidad and Tobago

## An Overview of the Steelpan

The steelpan was born out of a centuries-long resistance to French imperialism and the transatlantic slave trade, both of which repressed and made illegal the ancestral African culture, religion, music, and dance traditions of the people who would become Trinidadians. In the 1780s, French colonists brought their street festival culture to Trinidad and Tobago. After the emancipation of enslaved Africans in 1834, there was a resurgence of African musical and dance customs, which fused with colonial festival practices to form a new celebration known as **Canboulay**, a harvest festival marked by drumming and song. Canboulay became a vital outlet for the continuation of African cultural expression and laid the foundation for what would become calypso music, itself rooted in West African kaiso traditions.

Canboulay played a central role in the evolution of Trinidadian music and directly influenced the innovations that gave birth to the steelpan. In 1937, makeshift orchestras began emerging, made up of frying pans, trash can lids and oil drums. These street ensembles became popular in Canboulay celebrations and competitions, eventually evolving into full-fledged steelpan bands (also known as steel bands), and thus a new musical instrument and tradition was born.

The steelpan was invented in Trinidad and Tobago in the 1930s and first showcased at the Carnival of 1940. It has a long history in Trinidad and Tobago and has been a significant part of the island nation's cultural life, created as a means of preserving and honoring their musical traditions, and has since grown to be a significant aspect of the nation's cultural identity. When other percussive instruments were banned by the colonial government, the people took to playing frying pans, trash cans, and oil barrels, which directly led to the steelpan's creation when someone realized a dent in a barrel had a tone!

Steelpans, which belong to the **idiophone** family and are not actually drums (*see: membranophones*), are constructed from a 55-gallon steel oil drum that has been hand-hammered into a melodic form with up to 30 tone fields. This is where the colloquial term “steel drums” comes from, as people falsely apply the name from the source object and also associate sticks

with drums, though it's incorrect in the case of idiophones to call them drums. The short distance between adjacent tone fields as well as the tuning techniques give the steelpan an even more distinct timbre. Typically, notes are placed in a circle of fifths or opposite one another to avoid dissonance from interference. The steelpan is a versatile ensemble instrument renowned for its bright, resonant sound. A pair of straight sticks with rubber tips are used to play them and the type and size of the rubber tip vary depending on the type of pan. Some musicians use four at once, holding two in each hand like marimba and vibraphone players (also idiophones!). This playing style developed out of the early 20th century Carnival percussion ensembles known as "Tamboo Bamboo" in Trinidad and Tobago.

Winston "Spree" Simon is recognized for inventing the first melody pan, which was the first steelpan to play a complete melodic line with eight different notes. Adding rubber to the ends of playing sticks, Ellie Mannette improved the instrument's tone quality and softened the attack. He also invented the concave playing surface shape that is currently standard, enabling the arrangement of more notes on a single drum. The "spider web pan," a layout of fourths and fifths created by Anthony "Muffman" Williams, capitalized on these advancements and produced cleaner, more resonant tones. His interval-based design is still the most popular tenor pan setup today. Additionally, Williams contributed to the standardization of the use of 55-gallon oil barrels as the foundational material for pans, a practice that still shapes the instrument's design today (and where many handpan makers would begin their journeys as well!).

By creating the double tenor pan and becoming the first to use umbrellas to shield the instruments from the sun during outdoor concerts, Bertie Marshall advanced the development of the steelpan. Other significant advances by Bertie Marshall and Alan Gervais include the tuning of harmonic overtones into each note and using larger tone fields for lower notes (exactly like handpans today). Each pan has a different size and range: Some with 30 soprano-range notes and almost the entire "skirt" (the body of the oil drum) may be removed, while others may use the entire bottom of the drum for three bass notes per pan, in which case one person may play six different pans to have an entire octave of chromatic notes. These are called Six-Bass sets, and variations with 9, 12 and 14 notes evolved later.

The sweet spot range of the oil drum size and the length of the skirt often matches. Pans are also usually painted or chrome plated and, as a finish, other procedures like nickel plating, powder coating, or nitriding (a gas-treatment that diffuses nitrogen into the surface of a metal to

create a case-hardened surface) can also be used. Nitriding processes were common in early handpans and created the sound people are most accustomed to hearing and seeing until the last 8 years when stainless steel handpans have more or less become the de facto standard. Those are heated in kilns and ovens giving them a wonderful spectrum of golden colors and have become more popular and preferred by most players for their softer, longer resonance and dynamic range.

Overall, the handpan's roots in the steelpans are an integral part of its history. The steelpans has played a significant role in the development choices of the handpan in terms of what metal to use, how to treat it for tone and tuning stability, and how to shape and tune it. Some of the greatest makers in the early days were steelpan makers before they built handpans (Kyle Cox of Pantheon Steel and Reo Sonobe of Sonobe Handpans, to name two). It continues to be an important influence on the instrument's evolution and popularity in terms of the texture and timbre that handpan makers seek to evoke with their instruments, whether it be a metallic or ceramic sound desired.

## From Trinidad & Tobago to the World

The story begins in 1950 with Arthur Aldwyn "Boscoe" Holder. His BBC show, *Bal Creole*, aired on June 30th, 1950 and was the first introduction of the steelpans to audiences outside of Trinidad and Tobago. The *Trinidad All-Steelpans Percussion Orchestra* (TASPO), was formed by 12 of the best steelpan players from various Trinidadian steel bands to participate in the Festival of Britain in 1951. The members are all legendary steelpan musicians: Winston "Spree" Simon (*Fascinators/Tokyo*), Ellie Mannette (*Invaders*), Anthony "Tony" Williams (*North Stars*), Sterling Betancourt (*Crossfire*), Philmore "Boots" Davidson (*City Syncopators*), Orman "Patsy" Haynes (*Casablanca*), Carlton "Sonny" Roach (*Sun Valley*), Belgrave Bonaparte (*Southern Symphony*), Andrew "Pan" de la Bastide (*Chicago*), Dudley Smith (*Rising Sun*), Theophilus "Black James" Stephens (*Free French*). They were the first steel band to travel outside Trinidad and Tobago to showcase this new instrument to the world.

From that point on, there was a surge of steelpan makers appearing all over Europe and the Americas. Companies have been supplying steel bands with instruments in the ever-growing global community ever since then. This is where companies like PANArt, creator of the Hang, and Pantheon Steel, creator of the Halo and the first North American handpans, or Sonobe in

Tokyo, got their start as musical instrument makers. Speaking of Hang and handpan, let's discover how they began next!

# The Birth of the Hang

## Reto Weber and the Hang

May 12, 1993: *PANArt Steelpan-Manufaktur AG* was officially registered in the commercial register. Felix Rohner, Michael Frey, Bernhard Wissler, Werner Egger, and trustee Beat Eichenberger were the founders, collectively known as "*Berner Oelgesellschaft*," the first steel band in Switzerland to use homemade steelpans.

The founders formed a company to support the emerging Swiss steel band scene. Over the following years, the group of shareholders grew to twenty-four individuals, all passionate about creating and advancing high-quality steelpans supported by expert tuning services. They developed and patented a steel alloy called "*Pang*," which would be used in their pans and future instruments.

In November of 1999, world percussionist Reto Weber approached Felix Rohner and Sabina Schärer with a creative idea. He showed them his *ghatam*, a large, pot-shaped percussion instrument from southern India, and asked whether a durable, metal version could be made, capable of producing multiple notes. Inspired by this, in January of 2000 Schärer and Rohner combined two Pang shells originally intended for their "*Ping*" steelpans. One shell was in its raw form, while the other had already been partially tuned. This hulking prototype became the foundation for the Hang sculpture and actually looked more like the later "*Hang Balu*", both designed to be played by hand. This prototype was called the "*Baby Hang*." The next iteration in January was called the "*Ghatpang*," with the final design of the first Hang being presented in October of 2000 at the ICSTS in Trinidad and Tobago. It marked the culmination of years of research and experimentation by PANArt's makers. The instrument was and continues to be entirely rejected by the Trinidadians, something I will touch on.

PANArt's website, [www.panart.ch](http://www.panart.ch) went live in August 2000, and a "Hang International Group" on Yahoo Groups soon followed. Additional Hang prototypes were constructed in early 2001, and the technical and acoustic challenges were actively studied. In February, the makers consulted with a company specializing in acoustic tuning for automobiles. These experts in Helmholtz resonance design helped refine the "*gu*", the resonance port hole in the bottom shell,

both visually and acoustically, enhancing the Hang's projection and tonal quality.

In March 2001, the first Hang sculpture was presented and sold publicly at the Frankfurt Music Fair (March 7–11) for €300. PANArt relocated to the Hanghaus on the banks of the Aare River in May 2001. By 2002, they had shipped their thousandth Hang, an impressive feat in such a short time. For comparison, producing a single handpan today takes one to two months, and many makers craft only 200 instruments over the course of several years. There are obviously exceptions here, but with the wait lists as they are today, I doubt there are many single artisans or small 2-3 man groups producing more than that.

The year 2003 was pivotal for PANArt: the company changed its name from *PANArt Steelpan-Manufaktur* to *PANArt Hangbau AG*, expanded its distribution network, launched the "Hanghausmusik" concert series (featuring invited Hang musicians), and was granted a patent for their "Process for the Production of Sheet Metal Sound Instruments." In 2004, Felix, his son David, and Sabina participated in the first "Hang Out" in Glastonbury, England. In 2005, around 200 Hang owners gathered at the PANArt space for the First International Hang Players' Meeting, where they shared experiences and explored their instruments together.

Though production of the Hang (any generation) ceased in 2013, PANArt has continued developing new variations based on the same principles, experimenting with different shapes, sizes, and sound concepts. These new instruments, many patented and individually named, are still crafted upon request.

## The Hang Family Tree

The Hang fits into the idiophone class of instruments, as I mentioned earlier, and is heavily based on the Trinidadian steelpan. The term "handpan" was coined by Kyle Cox of Pantheon Steel, both due to copyright concerns surrounding the name "Hang" and because PANArt explicitly wanted to avoid the term becoming a generic label for similar instruments. It made sense, especially coming from another steelpan maker creating a steel instrument designed to be played with the hands.

PANArt's instruments are crafted using a mix of traditional and cutting-edge metalworking techniques. Making a Hang is a demanding, labor-intensive process that requires a

high level of craftsmanship. It involves shaping the body with hydraulic presses, followed by months of hand-hammering the tone fields using specialized hammers and mallets. The instrument is then heat-treated, likely in kilns or specialized ovens, to age the metal and compact its molecular structure, ensuring the steel remains stable during the tuning process.

(Unfortunately, I'm not sure of the exact technical details of PANArt's thermal treatments.)

This process is repeated several times, and the precise “recipe” for making a Hang differs significantly from the methods used by most handpan makers, whose own techniques vary widely from one another. Now that we've covered the basics of how the Hang is made, let's explore the different iterations of the instrument over the years.

## **First Generation (2001-2005)**

The first generation Hang was produced from 2001 to 2005 and was available in a wide variety of scales, up to 45 different sound models. Some of the early ethnomusicological modes that inspired PANArt included Aeolian, Ake Bono, Hijaz, Melog, Pygmy, and Zhi Diao. Each instrument featured seven tone fields arranged in a circle around a central note on the dome called the “ding.” Early ding tunings included F3, E3, and by 2005, Eb3 and D3, which allowed for deeper, more resonant tonal ranges. This development led to what PANArt referred to as the “Low Hang.” At that point, two layout options were available, seven or eight tone fields in the circle, versus the original seven.

Each first-generation Hang was individually numbered, with the name of the sound model inscribed, and bore either Felix Rohner's or Sabina Schärer's signature on the inside of the ding. This tradition, of signing the inside and writing the scale notes and name on the bottom shell near the rim, has continued among many modern makers to this day.

## **Second Generation (2006-2007)**

In spring 2006, PANArt introduced a new generation of Hang, commonly referred to as the second generation. These instruments featured a few distinctive construction changes: a brass

ring was added around the equator where the two shells meet, and the surface was coated with a thin layer of annealed brass over the nitrided steel. More importantly, PANArt moved away from the wide variety of sound models and began focusing on a single structure centered around a ding tuned to D3.

The surrounding tone circle always included two A notes (A3 and A4) and an additional D (D4), with the other notes varying depending on the specific instrument. Most models still featured seven tone fields in the circle. Starting in 2007, PANArt also began angling the tone fields at about 45° from an imaginary line drawn from the ding to the edge of the instrument. Earlier Hanghang (plural of Hang) had tone fields oriented radially toward the ding, more like traditional steelpans.

Another shift during this era was in the placement of signatures and serial numbers. Instead of signing the inside of the ding, PANArt started inscribing signatures near the outer edge of the gu side, with serial numbers marked inside the gu hole. Unlike the first generation, these later models were not given specific names for each tuning.

## **Integral Hang (2008)**

In spring 2008, PANArt unveiled a new model called the Integral Hang. The first units were actually dated November 2007, and from that point on, serial numbers were reset and began with an “H” prefix (e.g., H1, H2, etc.).

Several significant changes distinguished the Integral Hang from earlier models. Only one tuning was offered, consisting of seven tone fields arranged in a fixed scale: D3 (ding), A3, Bb3, C4, D4, E4, F4, and A4. The gu on the bottom shell was subtly reshaped to an oval to better support tuning of the three neck partials, D5, F5, and F#5.

The ding underwent a major redesign as well. A circular indentation was added to the dome, which was textured with a brass coating, annealed, and then lacquered. PANArt also reshaped the shoulder area between the ding and the tone fields to create a more gradual transition than in the second generation. All identifying information, including the PANArt logo, serial number, date of finalization, and the makers’ signatures, was moved to the gu side near the equator.

## **Free Integral Hang (2010)**

In April 2010, PANArt introduced the Free Integral Hang, a refinement of the Integral model with some key construction changes. Most notably, the brass ring previously encircling the seam between the ding and gu was removed. The dome of the ding also lost its brass coating and adopted a more complex “triple dome” design.

But the most radical shift was in the tuning philosophy itself. The Free Integral Hang was tuned entirely by ear, without the use of any electronic or mechanical tuning tools. While the ding generally remained centered around D3, the precise pitch varied between instruments. The tone circle still followed the layout of the Integral Hang, but PANArt placed more importance on the overall resonance and character of the instrument than on exact harmonic ratios between partials.

This approach mirrors the tradition of Trinidadian steelpan makers, who often detuned partials slightly to enhance the sound. Acoustic researcher Anthony Achong showed that this kind of intentional detuning, combined with the amplitude and frequency modulation of overtones, is crucial to creating the steelpan’s signature tone. PANArt applied this same principle to the Free Integral Hang, using it as a creative parameter in the instrument’s design rather than adhering to mathematically perfect tuning.

## **The Hang in a (Nitrided) Nutshell**

PANArt’s first Hangs generated a lot of interest and demand, and the company quickly built a reputation for crafting high-caliber instruments. I remember discovering the instrument online in 2012 and seeing a multi-year waitlist, with a price of around 1500€, if I recall correctly. A few people have recently approached me while I was busking and told me about their first encounters with the Hang, experiences quite similar to mine. Some mentioned seeing them resold on eBay for double or even triple the original price, driven by the high demand for the early Hangs. While writing this section, I came across some blogs that confirmed these firsthand accounts I’d heard in the street, noting that PANArt ceased production in 2005, which caused

some Hangs to be sold for as much as \$10,000. PANArt had specifically banned resales in the contracts with each buyer, but this was obviously ignored.

It was never PANArt's intention to make a ton of money, but the sensation they created, and the resulting demand, led to that level of price inflation. In the absence of Hangs on the market, this also spurred the invention of the handpan. Since then, the handpan's price has largely stayed within the same 1,500 – 2,000€ range, despite there being over 300 makers now around the world. You'd think that level of supply would outpace demand, but it seems to me that this price point has kept things balanced with what makers can realistically produce while still maintaining quality and affording them liveable income.

PANArt Hangs have been played by thousands of musicians all over the world and have featured in a wide range of musical performances, concerts, festivals, and recordings. The instrument sparked the birth of an entire genre of music and a growing global phenomenon. Thanks to the initiatory groundwork laid by Felix Rohner and Sabina Schärer, the Hang's popularity has contributed invaluable knowledge and inspiration to the handpan and its development as a deeply revered and adored instrument worldwide.

# The Age of the Handpan

## The Spread of the Hang-type Instrument

These instruments have gained popularity among musicians worldwide since their invention and now hold a place in both traditional and modern music. They've become a popular across many genres due to their distinct sound, which complements nearly any instrumental combination. Since then, a variety of musical styles, including Indian Carnatic, African drumming, samba, psychedelic ambient, techno, downtempo/chillout, meditative, and sound-healing music, have integrated the handpan into their soundscapes.

New makers continue to emerge each year across the globe as knowledge of the tools and techniques needed to craft handpans spread via social media and festivals. Many of these makers also reach out to the community by offering fabrication masterclasses for those eager to learn the craft.

When it comes to notable handpanists in the community, there are hundreds of incredibly talented musicians of all ages, as well as many incredibly skilled makers worth mentioning. Many of them will be interviewed in the second part of this book, so for now, I'll hold off on naming names for the sake of brevity and fairness to everyone I've invited to contribute their stories.

As the handpan's popularity continues to rise, it's likely to reach even more parts of the world. Its unique tone and adaptability make it appealing to many, and ongoing improvements in building techniques, efficiency and materials are helping makers refine their craft. I'm sure that as more people travel with their instruments, perform in public and share all those experiences online, the instrument will become even more accessible and known to the mainstream.

## Beyond the Letter: The Big Five

From what I've gathered, through digging into now-defunct Hang blogs and conversations with veteran players and builders, by at least 2007, PANArt had a peculiar process for acquiring a Hang. You had to *write them a letter*. Not an email. A physical letter. Then, based on what you wrote and their assessment of your musicianship (however they judged that), you

might be *personally selected* to travel all the way to Bern, Switzerland. Once there, you'd get to choose from a small batch of 10 to 30 instruments.

While plenty of people did succeed in getting one, many more were denied, sometimes with no clear reason, and often *because they were percussionists*. Yes, percussionists being rejected by makers of hand percussion instruments... sorry, "*sound sculptures*." Makes perfect sense, right? At the time, the price was still relatively low, about 900€. Remember, that was 900€ in 2007, and these instruments weren't anywhere near the pristine level of quality we see in stainless steel handpans now. Still, hindsight makes that price look like a steal and it honestly was for what they were!

Naturally, exclusivity led to the inevitable: a global wave of builders thinking, "*Ehh, I could make that!*" ...and many did! The first person to begin trying to build something like the Hang, based on the information I've gathered and am personally aware of in my interviews, was none other than Marco Della Ratta in 2006, with his Disco Armonico. I still think the first person to create and *publicly sell* a "handpan" (at this point, the terms handpan and pantam had not yet existed) was Bill Brown in Germany, who released the **Caisa** in 2007. Next came **BellArt** in 2009 with the "*Bells*," made by Luis Eguiguren in Spain. Not long after, Kyle Cox of **Pantheon Steel** introduced the "*Halo*" in March 2009. The term "*handpan*" was coined by Kyle Cox at Pantheon Steel for the obvious reasons of it being a steelpan you played with your hands. Another joined the community, Victor Levinson of **SPB** (short for *Handpans made in St. Petersburg*), Russia. Interestingly, Victor was also the first to publicly use the term "*pantam*", a blend of *steelpan* and *ghatam* used by a handpan distributor at the time, which referenced the two instruments, steelpan and ghatam, that inspired the Hang. Also entering the scene in 2009 were Ezahn Bueraheng and his friend Flavio Brant Alvim, co-founders of **EchoSoundSculptures** with their "*AsaChans*" in Switzerland. For the sake of historical accuracy and fairness, I'm officially coining them "*The Big Five*" and will refer to them as such going forward.

Now, at this point, the history conversation can go in two directions. One path follows the explosive growth of waitlists as Hang fans all over the world discovered these new instruments and scrambled to save up and get on the lists of The Big Five. The other path? That one is much darker and entails PANArt's decade-plus legal offensive to shut down what they see as unauthorized copies of their art, a campaign that has had mixed results until 2022 to 2024.

Let's dive into each of those directions in the later chapter "Law, Legacy and the Limits of Ownership" and my perspective on things after finishing all of my interviews.

The cult-following of the Hang and the hysteria in the online community surrounding obtaining one led a small band of people from different corners of the world to begin creating the first iterations of what we now call the handpan/pantam, and I think a more historically accurate name is "Hang-type instrument." We also have to consider that the internet wasn't at all what it is today. Social media was only just beginning to take root and explode in 2007. With the advent of many expanding hubs of media-sharing, the instruments suddenly had platforms on which to be showcased and shared.

By 2007, the handpan entered the anthropological spotlight as a rare example of a modern acoustic instrument with no single cultural origin, shaped instead by a global and decentralized wave of makers and performers. One could argue that the cultural origin is actually Trinidad and Tobago, which I personally find accurate and more respectful. Paying due respect to the Trinidadians who toiled endlessly at creating the steelpan, without which none of this would exist, is something that I think few people discuss or consider when talking about handpans. I wish for that to change and for our community to focus on historical education of both their efforts, as well as those of PANArt.

Besides directly contacting the makers on whatever websites they managed at the time, eBay was the main marketplace where a lucky few would find secondhand Hangs being sold. Oftentimes due to the extremely high demand, Hangs were resold for more than the purchase price, which was explicitly forbidden in the PANArt sales contract. There is a legendary story of a Hang listed and sold for \$10,000 at one point. I've never seen anything like their contract before or since the Hang, and I find their petition for the ethical resale of the Hang and their anti-profiteering desire for it in marketplaces to very honorable. Super idea, PANArt! Too bad that didn't work out. Hangs are still resold today for thousands more than people paid for them and depending on the generation, seen as rare collector's items.

## **Innovation and Evolution: Shaping the Future**

Once handpans appeared on the scene, more people picked up the (air)hammer and joined the party. Known as "makers," they initially emerged across Europe and then some in the

Americas, but soon spread worldwide. Today, you'll find dedicated makers throughout the Asian continent and Oceania, too. The biggest hubs for handpans in 2025 seem to be central and south/western Europe (Germany, Holland, France, Italy, Spain), China and Iran. Today, I'd estimate there are upwards of 300 makers around the world, due to so many having little or no social media presence and reputation. Additionally, there is no central registry of people actively building and selling instruments. Perhaps this is something that I should create after this guidebook is complete so that history is more easily maintained by the community going forward.

As handpan makers experimented with new scales, layouts of previous scales and even increasing the number of tone fields on a single shell, many exciting new innovations emerged. People began adding notes to the bottom shells, like Jan Borren. I believe he was also the first person to add extra notes beyond the typical 8 or 9 around the ding, placing smaller, higher-octave notes between the ding and this outer ring. Rafa D'Arco of Tacta handpans reported that in the Americas, Jon Antzoulis of Aura Handpan was the first to make a mutant handpan. These were dubbed "mutant" handpans, the first being Jon's "cyclops" with one extra note which kind of looked like the handpan now had an "eye" or was "mutated" from the typical form. He went on to joke that the "mutant" name was a total X-Men reference, I absolutely love that! It wasn't long before makers were adding more mutant notes with higher tonality layouts that accommodated them. (i.e. D Kurd 12, F3 Low Pygmy 20 or E Romanian Hijaz 18).

A major shift in handpan building began in 2018 when Yishama's Yhonatan Ale-Yahav introduced the first F2 Low Pygmy at Griasdi, first played publicly by Kabeçao. This is the famed "Astronaut" layout of F2 Low Pygmy, one note different than what the rest of makers typically make in 53cm. You can listen to it in the famous "Great Wall of China" video on YouTube. This marked the rise of "low ding" handpans, with large central domes and deeper ranges that soon became a new benchmark. Yhonatan also appears to be the first to build an E2 Hijaz that same year, while the first D2, C#2 and C2 builds I found were all built first by Harmonic Sculpture as far as public announcements show, who by the same public records on YT, still holds the world record for lowest ding on a 53cm, fully extended C2 Minor 16 layout. Arcana Handpan now holds the record for the largest handpans, reaching C2 with their ~76cm "Goliath" models, most of which remain in their private collection.

In the opposite direction from low scales, brands like Satya, Mudra, and Ziran in Brazil and Uruguay are adding more mutant notes to the top shells—ranging from the size of a plum down to a half-dollar or maybe a bit bigger than a 2€ coin. They still maintain fully-extended bottom shells with six or more tone fields. While all three brands have achieved 25+ notes, cleanly and stably tuned, only Satya has gone beyond and created 28, 30, 32 and even a 40-note handpan (using this mutant size on both top and bottom shells around the ding and gu). Satya is also the only brand I am aware of that has created A2 and F2 instruments with eight to nine notes around the ding and two mutant notes on their Jabbar and Shangri-La models, for example. If nothing else, they will be remembered for absolutely crazy layouts such as these, pushing beyond the limits of what people thought possible.

Most popular handpan scale names like “Kurd,” “Pygmy,” or “Sabye” don’t have any real basis in music theory: They’re arbitrary or poetic names for specific note sequences. Sometimes the same scale goes by several names, depending on the maker or the key. While these names can help non-musicians connect to the instrument, they’re often arbitrary and can cause confusion for newcomers. You can find more details on scales and layouts in the theory section of this book.

Handpans were originally made from raw, nitrided, or carbon steel, with stainless steel long considered unusable. That changed in the 2010s when makers like Satya, Leaf, Metalsounds, and Tacta began producing successful stainless models, sparking a crazed shift in the scene and obsession with the sustain stainless brought. Since then, many makers have used the same three or four grades of stainless and some have given them different names to appear to be unique, just like with scales such as Kurd with its 5+ different names. We’ll get into the details of physics in the next section of this book.

## Handpan Festivals and Gatherings

From the earliest days of the handpan, people around the world began organizing gatherings and festivals centered on the instrument. While the first events date back to the late 2000s, the majority have emerged more recently, especially between 2018 and 2024, when new festivals were appearing every year. This global surge in events has done wonders for the evolution of the instrument and the community around it, acting as creative incubators for new

styles, sounds, and collaborations.

Many players got their first major exposure at these gatherings, and quite a few makers introduced their first prototype instruments during early editions of these festivals, launching their reputations in the process. These events have played a central role in shaping the identity of the handpan world. They're not just meetups: they're where techniques are shared, collaborations are born, and lifelong friendships are forged. The community spirit that defines the handpan scene today owes a lot to these grassroots gatherings.

Since 2007, more than 30 handpan-related events have emerged across the globe. Below, I've put together a chronological list of the most well-known Hang and handpan festivals (at least those I could track down or personally know of), along with their locations and founding years. Look up the ones nearest you online. You might just find your next musical home!

- Hangout UK (England, 2007)
- Handpangea (USA, 2011-2013)
- Hang Uut Festival (Netherlands, 2011)
- Panacea (France, 2013)
- Handpan World Music Festival (France, 2014)
- Hangout USA (USA, 2014)
- Pantasia (USA, 2015)
- Singading (Spain, 2015)
- Griasdi (Austria, 2016)
- Pan Oz (Australia, 2016)
- Steel Mountain (USA, 2017)
- Hona (Greece, 2018)
- Pan Marco (USA, 2018)

- “HUG” Hungarian Handpan Festival (Hungary, 2019)
- Tokyo Handpan Festival, Tokyo Sound Lab (Japan, 2019)
- Pan India (India, 2019)
- Super Bloom Life (Women only Handpan Gathering, USA, 2020)
- Hangout (France, 2021)
- Bulgaria Handpan Festival (Bulgaria, 2021)
- Pantribe (Belgium, 2022)
- Swiss Handpan Festival (Switzerland. 2022)
- Wild Naya Academy (Austria, 2022)
- Dutch Handpan Festival (Netherlands, 2022)
- Canarias Handpan Festival (Spain, 2022)
- Handpan Festival Brazil (Brazil, 2023)
- Bali Handpan Festival (Indonesia, 2023)
- Ontario Handpan Festival (Canada, 2023)
- Pangonia (Germany, 2023)
- PanSiam Pantam/Handpan Gathering (Thailand, 2023)
- Pai•Pan Handpan Gathering (Thailand, 2024)
- Pantu Handpan Festival (Poland, 2024)
- Vivaan Handpan Gathering (India, 2024)
- Heartland Hangout (USA, 2024)

- Pandance (Germany, 2024)
- Sound-Sculpture Handpan Gathering (Germany, 2025)
- PANDala (Germany, 2025)
- Castle Handpan Festival (France, 2025)
- Costa Blanca Handpan Festival (Spain, 2025)
- PanParadise (Germany, 2025)

## Law, Legacy, and the Limits of Ownership

As I explained earlier in the chapter “*The Birth of the Handpan*,” five new companies emerged between 2007 and 2009. Their arrival sparked conflict in online Hang forums, with heated debates over whether these new instruments looked too similar to the Hang. Some distributors and later makers even used the term Hang to market these early handpans, claiming it was a generic name for a whole family of instruments, essentially trying to justify what many saw as theft. In response to claims that he was doing this, Luis Eguiguren of BellArt publicly clarified that his instruments were called “BElls®” and that “BELLArt®” was also a separate, registered trademark, and that he hated people calling them Hangs®. He’d never used those words in his website or communications, and claimed immunity from responsibility for anyone doing that. Ironically, PANArt, who had previously seemed open to others experimenting with their idea and processes, quickly reversed their stance once these alleged copies began appearing and they had actual competition in the global market.

On June 27, 2012, PANArt took BEllArt owner Luis Eguiguren to court in Spain, attempting to legally prevent him from producing BElls on the basis that they were copies of the Hang. During the trial, the judge called upon Ravid Goldschmidt as a subject matter expert. He’s the owner of Handpan Barcelona, one of the first touring Hang players and famed Barcelona buskers, a close friend of both Luis *and* PANArt and someone who actually learned to tune with them for a time. According to accounts of the events I heard in my interviews, Ravid was asked directly whether he could tell the difference between a Hang and a BEll, not whether anyone in general could, but him specifically. He answered that he could do so easily. That was enough for the judge. They ruled that BElls were not the same as Hangs, and the case was dismissed. It would be some years before PANArt resumed legal action against the handpan community.

In January 2014, PANArt made a surprising move: they offered limited licenses to use their methods, without providing any training. By March of 2014, they extended a “material analysis” service, allowing makers to send in their steel to be tested by PANArt. However, this seemed like little more than a thinly veiled attempt to monitor for patent infringement. Some saw it not as an act of collaboration or support, but as a strategic trap designed to gather evidence for potential lawsuits.

In 2016, a legal settlement was reached in Switzerland between PANArt Hangbau AG

and EchoSoundSculptures GmbH after the latter was accused of copying PANArt's instrument designs too closely. PANArt claimed that EchoSoundSculpture's handpans bore too strong a resemblance to their original Hang and Gubal sound sculptures. As part of the agreement, EchoSoundSculptures was required to significantly alter the shape and features of its instruments to avoid confusion, including changing the form of the tone field domes and repositioning the resonance hole. They also had to publicly acknowledge PANArt's influence on their designs. This legal resolution also led other makers, such as Soma Sound Sculptures, to proactively change their instrument designs to avoid similar issues.

While copyright protection is strong in Switzerland, the situation outside the country is more challenging. PANArt faced failures enforcing their intellectual property in places like the U.S. against Pantheon Steel and Harmonicart in Colombia, leading them to shift focus to innovation and cautious legal strategy rather than repeated litigation. The ESS case highlights the importance of clear design distinctions and legal awareness for small creators, especially in niche industries like handpan making. PANArt emphasized being content that coexistence seemed possible after that was finished.

In 2019, PANArt Hangbau AG filed a legal case against the company Hand steelpan and owner Jacopo Marrocchelli in Italy for copying the protected design of the Hang® Gubal® and Balu®, and for infringing on the trademark by using the name "GU-PAN" for both of its instruments, which closely resembled "Gubal." The Milan court issued an injunction prohibiting Marrocchelli from manufacturing, marketing, or selling the infringing instruments, and ordered him to pay €2,300 in legal costs and €2,000 per future infringement. Jacopo didn't appeal and the ruling was finalized. PANArt stated they may take similar action against future violations of this kind.

In 2020, PANArt filed a lawsuit against the German retailer "*World of Handpans*" and won in the first instance. The court ruled that the Hang® is a work of creative art protected by copyright, meaning that handpans with a similar shape could be considered infringements. PANArt argued that the Hang® is not a musical instrument, but a piece of fine art, making it eligible for copyright protection, unlike functional musical instruments, which typically aren't. This ruling currently affects Germany, but PANArt has stated they intend to pursue legal action in other countries and had at that time already sent a cease and desist letter to Ayasa Instruments in the Netherlands.

It is important and interesting to note that PANArt cleansed their website and any publications that they'd made up until that point which referred to their instruments *as instruments*, and instead started down this path of calling them “*sound sculptures*” to gain the legal benefit of being able to argue plagiarism of their art, since functional objects and mechanisms are not protected under EU copyright law. This works on paper legally in terms of semantics, while also showing their character, and what lengths they were willing to go to so they could gatekeep their creation from the world, quite clearly. PANArt cannot possibly provide a planet-wide demand for Hangs on their own. The world didn't wait, they simply picked up their hammers and got to work continuing this exploration, with or without PANArt.

If PANArt's claim goes unchallenged, it could have serious implications: handpan makers might be legally barred from producing instruments in the familiar shape, and live performances, workshops, or videos featuring such instruments could be restricted. This lawsuit is part of a broader pattern of legal actions taken by PANArt against other makers. While groups like HCU (Handpan Community United) hope for a more collaborative relationship with PANArt, they now feel compelled to support affected makers and challenge these copyright claims in order to preserve the freedom to build, sell, and innovate within the handpan community.

It was in September of 2020 that PANArt's lawyers sent a letter to Ayasa Instruments in the Netherlands. PANArt claimed that Ayasa was making and selling handpans and raw shells that copied the unique design of the Hang, including its specific shape and layout of notes around the central dome (ding) of the instrument, and resonance port hole (Gu). They also argued that Ayasa's public statements and sales encouraged others to make similar copies. PANArt claimed this violated their copyright, even though PANArt themselves had expressed interest initially in people innovating with their idea in years prior. It seems to me that seeing others outshining them and overshadowing may have contributed to them changing their position.

PANArt argued that the Hang wasn't just a musical instrument, it was a work of art, carefully designed to reflect the creators' artistic vision. They said multiple courts in Germany had already agreed that the Hang's shape was protected under copyright law, and that this legal protection applied across the European Union, including the Netherlands.

In the letter, PANArt said they were open to settling things outside of court, but only if Ayasa accepted that the Hang was protected by copyright. If Ayasa refused and kept selling the same designs, PANArt made it clear they were prepared to take legal action in Dutch court. They

invited Ayasa to stop selling the instruments immediately and to meet in Zurich to talk about a possible agreement.

What followed after some back and forth was the Ayasa headquarters being raided by police, thousands of euros worth of handpans, shells and tools being confiscated (and still are to this day as far as I'm aware). The HCU mobilized across the internet and handpan gatherings and by word of mouth immediately, trying to raise funds to fight the now 5-year-long legal battle (that is ongoing as of June 2025) to protect the rights of makers to build handpans in the EU and handpanists to perform with and sell music made using handpans. The court cases between Berlin and Amsterdam have been ongoing for years and for anyone interested in reading about them, they are detailed on HCU's website, [hcu.global](http://hcu.global).

For sake of space and brevity, I will not include all of them here, but will share that the situation as of August 2025 is that the courts are finding that PANArt does hold a copyright related to the Hang and now must determine if there is any infringement on said copyright. There is good news though! The German court system, which the case has been temporarily returned to and ordered to make a *full decision* on all aspects of the case first before returning it to Switzerland, have recently determined the Birkenstocks brand sandals are *not copyright protected*, as their elements are *functional* rather than *artistic*, so the same is possible for handpans.

## Personal Thoughts of the Author

Before you begin, it's important to note that my personal views are exclusively mine, and anyone that I have interviewed during this project does not necessarily share these opinions. Please do not assume that what I am sharing here is the collective view of all handpanists. While many may agree with some or all of what I say, I do not claim to speak for everyone.

### 1. The Origin Hypocrisy

What I find entertaining about this whole story is that PANArt started as a steelpan company that culturally appropriated and blatantly copied the idea of Trinidadian steelpans. They made money from them for many years without facing any consequences from the Trinidadian people or government and without ever paying respect or financial royalties. This was not just

business, it was another chapter in the long history of European cultural appropriation, where traditions from oppressed people are stolen, rebranded, and sold for profit after those same people were punished for their own forms of self-expression. It is the same story we see with Black music and culture in the United States, which has been copied and profited from worldwide. To make things even worse, PANArt once went to Trinidad and Tobago to show off their so-called superior steelpan material and the Hang, only to be laughed out of the country. That part admittedly always makes me smile with the biggest, mischievous, Cheshire Cat grin.

## 2. The Legal Farce

The irony of it all is that when others took PANArt's ideas, improved them in a matter of a few years (and continue to do so more every year since then), and became more popular by not acting like gatekeepers, PANArt reacted with a long, bitter and still-ongoing tantrum. They tried to claim copyright over functional parts of the Hang, calling them fine art and artistic choices, as if hammering dimples into steel could ever be compared to painting a masterpiece or sculpting pure marble.

The truth is simple. Makers can create impex dings and even small dimples inside dimples. PANArt themselves admitted this was different enough not to count as infringement, as shown in their legal action against EchoSoundSculptures. But dimples *are* necessary for sound *and* stability of the tone fields. PANArt's argument is basically, "*Change your instruments in extremely small and pointless ways and maybe we will allow them.*" As if that would ever make people abandon handpans for Hangs, which PANArt has not even produced in more than ten years!

Still, they continue to fight what looks like a losing battle, trying to copyright the very shape of the *instrument*. Even worse, they tried to delete old evidence from the internet where they openly called the Hang an instrument and encouraged others to innovate on the idea, but apparently only as long as said innovation didn't become more popular or make more money than them! Unfortunately for PANArt, The Wayback Machine has kept archives of their original words for over twenty years. In the courts, their shifting stories and poor character do not matter. Judges only care about facts, comparisons, and technical definitions of similarity. On that level, PANArt's lawsuits look less like the protection of art and more like petty obstruction over something they have abandoned themselves back in December of 2013, long before the legal

battles with Ayasa began when they initiated a seizure of counterfeits and parts stored at Ayasa Instruments B.V. on 28 April of 2021, following warnings for copyright infringement.

### 3. The Missed Opportunity

There is also a personal side to this story. When Felix Rohner was a child, his father's idea was stolen by a business partner and his father was cut out of the deal completely, which led him to take his own life. This seems to be a deep and unresolved trauma, and now Felix is likely seeing himself as reliving his father's experience of injustice through the creation of handpans. It explains his obsession with control, but it does not excuse the harm PANArt has and continues to try to cause to a community that otherwise celebrated them and would continue to do so.

Many have said that if PANArt embraced the new direction of building extended range instruments with stainless steel, they might have kept their place as one of the most respected and sought after builders, simply for being the originators. They likely would have been welcomed all the festivals, asked to give talks and workshops, and been remembered with admiration.

The hardest part for many to accept has been the fact that Felix even demanded the destruction of instruments made by other builders, including respected makers like Ayasa. When I share this with people who are often seeing a handpan for the first time (via my performances in my city and surrounding regional area), the response is always the same: First comes disbelief, then offense, and finally disappointment. People often exclaim, "*But how can you copyright the shape of an instrument!?*" One person even compared it to trying to copyright the shape of a pair of pants - it's outright ridiculous. To most, the idea is entirely absurd and an affront to music and the creative spirit of humanity.

From that "human point of view," it feels completely backward. PANArt brought something *extraordinarily life-changing* into the world, and it was inevitable that others would build on it. That is exactly how human innovation historically works: Someone lights a spark and makes the first torch and campfire, then others carry said flames forward to build coal-fired pizza ovens, fire dancing props and musically-synchronized, flame-belching art cars at Burning Man: CUZ IT'S COOL! That future just arrived *much, much faster* than PANArt could have imagined. It must have been upsettingly surreal to watch themselves be lapped in a race that they weren't aware they were even a part of and that had only just begun moments earlier.

## Closing Thoughts on the Legal Battles

In the end, PANArt's strict and closed approach, forcing people to write letters just to be *considered* to buy a Hang, not to mention the logistic and financial complications of having to travel all the way to Bern, Switzerland to pick one of a handful of instruments at random, created an atmosphere of elitism and exclusion. People had to accept whatever Hang they were given, with no custom requests, and many were rejected without reason. This left people feeling that PANArt built walls around an art form that should have symbolized openness and connection.

Understanding Felix's familial background does help empathize with his need to protect his creations. But all attempts at reconciliation, even from friends and pioneers of the Hang who later built and/or played handpans, have been rejected. Felix has made it clear that "*PANArt does not make handpans,*" and that is usually where any related conversation abruptly ends.

It is true that handpan makers could have accepted some compromises, like impex dings or mini dimples inside the dimples, and perhaps avoided many years of conflict and astronomical legal fees largely crowdfunded by the community itself...but here we are. The community has grown stronger and more united through and despite this struggle. Every new player eventually hears the story and naturally sides with the handpan, the joy and love of music, and with the idea that no one should be allowed to own the shape of an instrument.

# The Physics of the Handpan

This section will cover how handpans are made from beginning to end, the differences between raw, carbon, nitrided and stainless steels and how the processes and steel types affect the end result. I will discuss various parts of the instrument and their functions, safety in handpan construction, and a little bit of history sprinkled in about the community's relationship with and reaction to these developments. I'd also like to touch briefly upon the future of the instrument in terms of the creation process.

## Ding, Shoulder, Gu and Notes: Parts of the Handpan

I always read this title to the tune of "*Head, Shoulders, Knees and Toes.*" I hope it's stuck in your head now, ha ha ha... There are 7 main parts of the Hang-type instrument. I'll briefly describe each part's location and function within the overall instrument below:

- **Body** - the steel shell itself upon which all of the notes are hammered, and where the gu porthole is cut out of the bottom shell. The body is not tuned, but *is* hammered to help reinforce it as a “global anchor” for the tone fields, to hold them in place and allow them to resonate properly.
- **Ding** - the central dome/tonefield on top of the instrument. This is usually the root of the key that the handpan is tuned to, but at times the 5th scale degree. There is an **apex** (convex) dimple, versus **impex** (concave, like other tone fields). With dings at a D3 and lower, the harmonics playable at each axis of the dome are bendable (a neat trick!).
- **Shoulder** - this is the edge/border of the ding, and is often tuned as well. A “rim shot” can be played on the shoulder akin to snare drums and depending on the tuning, can sound quite lovely. The borders of all other tone fields/notes are just called borders.
- **Tone Fields** - these are the flat, ovular parts of the instrument that circle the ding (and the gu if your pan is extended with bottom shell notes). They are tuned by hammer to specific pitches according to their size, which determines the lower/upper limits the metal can be tuned to. Finding the sweet spot for each tone

field size allows for maximizing the use of the space on a shell, as well as accounting for interstitial interference. Some handpans have space for even smaller tone fields called “mutant notes” between the outer ring and the central ding. The most famous examples are extended D Kurds, E/F Romanian Hijaz and F Pygmy scales, video examples of which now litter social media and video-sharing sites.

- **Interstitial** - the space between each tone field, which is technically a part of the body overall. This is hammered to dissipate vibration from neighboring notes and isolate the frequencies, resulting in cleaner notes without interference.
- **Gu** - the porthole on the bottom of the instrument. This serves as the aperture/neck of the Helmholtz resonator’s chamber/cavity. PANArt has created instruments in which its rim is flattened and tuned to be played as an extra note, and holds a copyright on this concept. It can be played exactly as the Udu is, creating a low, bassy formant sound which can be quite fun to experiment with.
- **Rim** - the edges of the two shells are glued together with industrial sealant glue and then ground down to a smooth finish, both for comfort and safety as much as visual aesthetics. PANArt was known for creating brass rings to protect and decorate the rim in certain generations of Hang, and also laid claim to this aesthetic touch. This led to makers like Meridian Handpan placing a thin brass ring between the two shells before grinding and polishing, giving a beautiful line of color between the shells - a subtle but classy touch. The industrial glue cures over time, and while the instrument is finally playable after 2 weeks, it will continue to open up and deepen its resonant qualities over the course of the first 1-3 years - an exciting surprise for early makers and something for players to enjoy as they grow with their new instruments over time.

## Types of Steel Used

First, let’s lay out what each of the words above means and then we can discuss when and where they were/are used.

1. **(Raw) Steel** - increased strength due to alloying properties of carbon and iron; resistant, but not impervious to corrosion; malleable to allow for easier shaping; lower strength and higher cost compared to carbon steel. Usually has a dark gray to black color.
2. **Carbon Steel** - Higher carbon content; increased strength and hardness; good for use in low-stress applications; more susceptible to corrosion, especially in humid/salty environments (coastal regions); cheaper and stronger than Raw Steel. Usually has a dark color ranging from dark gray to black, with some having blue or purple tints. This is the precursor to nitrided steel.
3. **Nitrided Steel** - Heat-treated and nitrogen-diffused carbon steel (achieved through a gas-nitriding process most commonly with ammonia, which is rich in nitrogen); Much higher corrosion-resistance than the previous two types, but not impervious to it. Usually has a dark color ranging from dark gray to black.
4. **Stainless Steel** - alloy containing chromium, making it highly resistant to corrosion; ‘Ferritic’ or rarely ‘martensitic’ steels are used for handpans (400s grade); Colors range from gold and copper to various shades of chocolate brown and even purple after heat treating, sometimes removed with a solvent afterwards, returning it to its typical silver color.

## The Progression of Materials Over Time

To begin to discuss these types of steel and their usage in the building of handpans, we must begin with PANArt and their nitrided steel they named “*Pang*.” PANArt experimented with the length of time the steel was exposed to the gas nitriding process to discover optimum qualities that would result in stability for shaping, tuning, and to attain the tonal qualities they were looking for. Nitrided steel has a strong, warm tone and decent resonance as well. Unfortunately, these initial experiments were not as stable as makers have achieved today, and often were detuned easily as the instruments were not very resonant and buskers in the street would play them much harder to get the sound to reach their audience, easily detuning their Hang.

This isn't impossible to achieve with carbon steel, though the tone tends to be brighter and resonance may be longer depending on the techniques used to build the instrument. My personal experience so far has been that carbon steel handpans are much more resonant than I expected. They look similar to nitrided pans, but their notes ring out much clearer and brighter than any nitrided pan I've played, apart from a few special cases from SPB and other top shelf early makers.

Stainless steel was beginning to be used sometime between 2016 and 2017, and brought handpan making into an entirely different realm. A handful of makers around the world began exploring and experimenting with it - Leaf, Satya and Tacta handpans being some makers I know of to pioneer its use early on, though I'm sure there were one or two others doing so in private, as Rafael D'Arco confirmed was definitely the case but couldn't remember who it might've been. Stainless steel is much more elastic than other types of steel which has a deep impact on the sonic properties of the steel and also how it is shaped. Being that stainless steel always tries to revert to its original/previous form, makers must combat this by putting extra hammer blows and energy into the steel to get it to stretch and then resist back into the form they desire. The upside to this extra work is that once in form/tune, this stubborn elasticity helps keep the steel there quite well. It's not infallible, but it's quite stable.

Stainless steel also has a much higher resonance or sustain than the previous types of steel used, double or triple what carbon and nitrided steel can achieve. While carbon steel might ring out for 3-5 seconds, stainless easily reaches 6-9 seconds. Some makers, such as Tacta, want to achieve *less sustain* with stainless steel: wanting its timbral and percussive properties without the long sustain. This is better for recording purposes in not having to deal with "audio mud" and phasing issues. Personally, I adore an "overly resonant" pan, as it creates an ambient wash that is epic for meditative and relaxation purposes.

Nowadays, very few makers are working with nitrided or carbon steel, and most new makers go straight into stainless production, buying shells from Ayasa, Shellopan or Mirashells for example. Many makers are forming their own shells now as well, such as my friend Max at Ziba Drums. These brands offer various grades of stainless steel that all have unique sonic properties for varying tastes amongst handpanists. I'm positive there are others who sell pre-sunk shells, but I am unaware of who they are and follow far too many social media accounts to remember which ones I've seen promoting their products in this way. Mirashells and Ayasa are

the only ones I know of with an entire online presence dedicated to their products. I've personally owned 3 instruments built on Mirashells now and can attest to their high quality, stability and beautiful timbre.

Apart from the move away from nitrided to stainless, many makers have also delved into the world of textures and “skins” by using different polishing techniques, buffer attachments and something still tightly gatekept that results in what Omana Handpan created and coined the name for “Dragon skin,” which indeed has a leathery look to it akin to that of reptile skin. The secret to creating it is tightly guarded, and the price is extremely high for customers for what it is. I suggest going directly to Omana for this, as others’ quotes were a couple hundred euros more than theirs for something that isn’t *quite* the same.

The information and number of people creating handpan-making tools available today dwarfs what we had even ten years ago. Many makers in the first 2 generations had to create their own tools from scratch and solve every problem on their own. There was very little information even within the famous and now defunct handpan.org forums where early makers showed off their work and asked for advice, and players shared what they were doing.

Some makers are now sharing shaping and tuning specifications and techniques information through their social media accounts and websites, a welcome breath of fresh air to grow the community of makers. Hopefully information, access to tools and the number of people who create tools for makers continue to grow so that the craft doesn’t die out and we will have access to local makers for yearly servicing all around the world. It would certainly be difficult and risky to rely on shipping things to China and back if the mass production factories end up being the only ones left in a decade or two, plus not having an instrument for 1-3 months would be devastating to the majority of handpanists, especially those with only one instrument.

## Helmholtz Resonators: Your Gu and You

By adjusting the resonance frequency of an enclosed area with a small volume of air, Helmholtz resonators are used to enhance acoustic performance and minimize noise. This almost exclusively had industrial applications until the Hang was invented. They’re named after the German scientist Hermann von Helmholtz who first showcased them in 1859. Helmholtz resonators are made up of a chamber or cavity that is connected to the primary sound source by a

little neck or aperture. The cavity's and the neck's resonant frequencies work together to either attenuate or enhance sound waves as they enter. The size of the neck, the frequency of the sound wave, and the cavity's dimensions all affect how much attenuation occurs.

The fundamental idea of Helmholtz resonators is wave interference. The air inside a Helmholtz resonator vibrates at the same frequency as the sound wave when it enters the chamber. The resonant frequency of the chamber is determined by the resonator's neck, which works like a tuning fork. The amplitude of the sound wave inside the chamber is increased when its frequency coincides with the chamber's resonant frequency, while other frequencies are damped or nearly entirely muted in some cases.

In layman's terms, the handpan's inner cavity is the "chamber" and the gu is the "neck/aperture." The diameter of the handpan shell directly affects the size of the Helmholtz resonator and by extension the frequencies that will be able to be tuned easily on the steel's surface. Certain frequencies, like Bb4, simply do not play nicely with the 53cm diameter shells due to the way that its wavelength interacts with the size of the inner chamber. Using a larger or smaller diameter changes the notes which will or won't work, as explained with the wave interference concept above. Certain tonalities for certain layouts are impossible to make because of these impedance points such as Bb4 on 53cm shells or C#5 on some mini pans.

Approaching the resonator from another angle, the gu will sometimes need to be "extended" to properly adjust the internal resonance. This is done by adding a wooden or plastic (now that 3D printing is a thing) tube of a specific length into the gu, which is often fitted with a thin strip of cork glued to the tube to ensure that the fit inside the gu is tightly sealed so that it doesn't fall out. This amplifies the bass frequency of dings A2 and lower and helps to control and focus the resonance from within the chamber outward. The sound is wild at that point: holding the pan up to one's ear and firmly playing a muted strike on the ding releases a short but powerful, sub-bass thump. This is one of my favorite things to show people with low ding instruments.

To quote the late physicist Dr. Anthony Achong, whom many consider the top scholar in the realm of steelpan physics: "*...it is true to say that the beautiful mathematical structure of pan dynamics is matched by the profoundly beautiful sounds of pan music.*"

# Handpan Building 101

There are multiple different tools that one needs to build handpans, no less than 4 different ways to create the base shells upon which makers shape and tune the tone fields/notes, and many vastly different results based on the combinations of tools and methods one chooses. There are more nuances to every item in this list, and I will touch on those in more detail individually after this list. Some of the basic tools you'll need:

- **Hammers** - In different sizes and shapes, used for shaping and tuning. Usually wooden, metal or plastic and the tuning hammers *almost always* seem to be covered in a *very specific and intentional* amount of duct tape unique to each maker, from what I've seen on and offline.
- **Tuning rings** - Metal rings with holes around the edges to clamp them together with industrial nuts/bolts, placed on a stand to hold them in place while they spin vertically to allow access to the top (outside) and bottom (inside) of each shell.
- **Tone field templates** - Usually ovular and circular magnets of specific sizes with the notes a tonefield of that size can be tuned to written on them, made either by trial and error or obtained from other makers.
- **Linotune™** - Strobe tuner software (desktop/mobile) used to tune the fundamental, fifth and octave of each tone field simultaneously. This has become the industry-standard app to tune with. I don't believe/know if there is anything nearly as robust and accurate as Linotune.
- **Dimple press** - A vertical hydraulic press used in tandem with a metal sphere and ovular dies (imagine a taller, oval-shaped hockey puck with a hole in the center) to evenly press the dimples into the newly formed shells before hammering the tone fields around them. You can hand-hammer dimples, but I believe this is rare and most people will buy a press ASAP as it exponentially increases the speed at which you can churn out pans.
- **Hand torch/Kiln/Brick oven** - You'll need something to heat-treat the steel shells after finishing the shaping process and before beginning the first round of tuning. Each maker has their own "recipe" of how hot and how long they heat their shells, and whether they repeat heat treatments at any point in the process, so

I can't honestly say when it happens beyond the first obligatory heating. This is done to "age" the metal, compacting the molecules together making them stronger and more stable when then tuned. Some makers have the heat in digitally controlled kilns and ovens change over time. Others use large ovens with racks inside to bake many pans at once, versus one in a ceramics kiln. I've seen people use the sun outside, but I think that this is almost always in tandem with the torches and the sun alone cannot heat the metal to the temperatures needed to create the desired atomic stability.

- **Metal cutting tools** - Electric or manual shears are generally used to trim the corners off the sheet of steel after the shell is sunk in the center of it. Some makers have laser cutting tools, but this is rare as they're quite expensive.
- **Fully-loaded toolbox** - Let's face it: You're going to be working with all manner of tools and you're often going to have to build your own, as well as physical aids like stands, vice clamps, etc. You're going to need at least a basic set of tools from screwdrivers to files to hammers and wrenches of all sorts - the more you have the better-off you will probably be. Think a typical red toolbox you could carry in one hand, maybe not necessarily those giant wall-sized ones, but this will change depending on how involved you are in your tooling processes, I suppose. Having things to service/repair the essential tools above, or optional ones below, is more or less the goal.

Some optional versions of the tools above, or others that you could employ to make handpans a lot faster and with much less physical exertion might be:

- **Air hammers** - Compressed air hammers, like hand-jackhammers, used to hammer out the shell whether you are sinking it or "shaping" the body, hammering it to form stability or softness and make the shoulders/borders of tone fields. They can be quite dangerous if not used properly. Avoid using "vibration gloves" as these spread out the vibrations and also make you lose grip on the hammer, causing exponentially more arm and hand nerve damage than they are assumed to actually be preventing. They eject extremely cold air (from the compression) usually someplace just above where you'd grip them (be careful!!)

- **Compressor** - A tank, usually about the length and height of the passenger seating area of a car (front and back), used to power the air hammers.
- **Tuning booth** - Having an acoustically treated (just line the walls with foam honestly) booth for tuning can result in more accurate reading with Linotune and less (but nowhere close to zero) annoyance to anyone within a 200ft/60m radius.
- **Rolling machine** - A machine that will mechanically “roll” against the steel sheet and sink the shell for you. As far as I understand, this is programmed by a controller PC and done automatically. This was and still is not widely used, but does exist. I believe Pantheon Steel used this tech for a time before moving on to deep drawing.
- **Deep drawing machine** - A kind of hydraulic press used to form the sheet metal with a few pieces: A *punch* is the rigid, shaped tool usually made of hardened steel that moves vertically to press sheet metal into a *die*, a hollow mold shaped like the final lenticular shell, thereby deforming the metal without breaking it by forcing it to flow and conform to the die cavity’s shape. In layman’s terms: It’s a big metal ball that hydraulically presses into the sheet metal against an equally curved bowl-mold to form the lenticular shells used to build handpans.
- **Hydroforming** - This functions exactly like the deep drawing machine, but is literally a pressure washer shooting into an industrial-grade bladder that fills and presses into the shell, creating the same dome shape as the metal punch/die by different means. This is a form of free shaping without a mandrel.

## Creating the Canvas: Sinking Shells

Now that you have a very basic understanding of the tools needed, let’s discuss how the four different types of forming the base shells ultimately affect the outcome of the sound and what physical possibilities they provide or prevent respectively. Choosing to hand-sink your shells can be very physically draining and take days, but gives you the most control over the exact depth and thickness of the shell at every point. Choosing to use an air hammer might speed up the process immensely, but you forfeit the accuracy of hand-sinking and may put more energy or depth into the shell than intended, but this is still quite accurate if done carefully.

Hydroforming has been reported to produce inconsistent shell thickness based on the parameters you use with your setup. Deep drawing gives you a highly-accurate and consistent thickness each time. Of course, each of these processes grows many times more expensive (in the thousands) than the previous one. Hydroforming can cost around \$2000-5000 to build (depending on how MacGuyver/DIY you get with it) while a deep drawing setup is significantly more than everything else and cannot be self-made, easily reaching upwards of \$20,000.

It's important to also describe the difference between thickness of the steel shells being used to create the instruments. Makers have been using 1mm to 1.2mm thick steel sheets to build handpans and those slight differences (even a difference of 0.08 can be felt!) make a massive difference in the sound, stability and malleability of the materials.

## **Hand-Sinking**

Beginning with the first option of what we refer to as “hand-sinking” your shells, you’ll likely pull out your wooden mallet from your designer Super Mario Bros. toolbox and start hammering the shell as evenly as you can, for an ungodly number of hours to slowly sink it down into the shape and depth you desire. I imagine metal hammers would likely be much less prone to chipping and breaking than wooden mallets, and could likely deliver more concentrated kinetic energy per strike than wood, but I’ve been told using larger mallets is easier.

This is the slowest and most physically strenuous option, and also one that every maker I have spoken with has said they believe people should try at least once. Having that experience will teach you things that you didn’t know about the steel that you might not have noticed or seen otherwise, which could enhance your ability to use other tools in a more precise way that leads to better outcomes you didn’t know you were skipping or preventing with poor or simply different techniques. I think the biggest advantage here is having the most accurate and consistent control of depth and thickness of the shell all over, something incredibly important for stability. The biggest disadvantage is the massive toll it takes on your body. Some makers reported it taking hundreds of shells to perfect their hand-sinking technique, and often that the ding area is thicker than deep drawn or hydroformed shells.

## Air Hammer

Next up is using air hammers. These exponentially decrease your production times, physical fatigue (though that's still a huge problem) and still give you a very accurate control over depth and thickness of the shells. There are some dangers associated with the air hammers as discussed previously, but aside from the massive con of very easily causing oneself permanent nerve damage (I feel sad writing this knowing people often purposely ignore this), the pros of being able to produce more shells and have consistent results from shell to shell, especially when hammering into a mold as is common practice, may be worth it to you. **Molds** are metal bowls essentially the depth and curvature that you want the flat sheet to be after you finish hammering the sheet into it (a physical limiter of sorts). This is similar to the deep drawing machine mold.

## Spinning or Rolling

In this method, the sheet of steel is placed on a spinning lathe, while a “buck” is held in the middle of the sheet. It is slowly moved outside, which creates the shell. Rolling is similar in that the shells are spun while an object is pressed into it to push out and form the curvature of the shell.

## Hydroforming

Another option is hydroforming. This does have the ability to create relatively consistent thickness across the entire shell while being exponentially faster than hand and air hammers. All it takes is a garden hose, pressure washer, some hose attachment conversion adapters for high-pressure hoses, needle and manometer valves and per Colin's suggestions, and some extra on/off valves placed throughout the sequence to control, stop and purge pressure at various steps in the process. Essentially, you're automating everything as much as possible and removing a large amount of human error. You could even have the shell press into a physical trigger to turn the machine off when the shell reaches the max depth. The setup and forming processes may be a bit complex, but the time saved and accuracy gained is worth it. The process is obviously much less physically strenuous than hammering since the machine is working for you, and is much more cost-effective as well.

The materials necessary (albeit dated now, and since Europeans had improved the original design by making it smaller and portable soon after) are easily found on Xenith Handpans' website and the presentation video from Hang Out USA 2016 is on the same page if you'd like the in-depth video explanation beyond what I've written here. The sound is said to be quite unique when compared to hammered shells, which makes sense if the membrane is more consistent all over, so will be the sound. It should be noted that it isn't perfectly consistent in all spots as with deep drawing, but is quite close to it.

## Deep Drawing

Finally we have deep drawing. As Mark Garner of Saraz said, "...[deep drawing] offers a bit more inherent, ceramic or 'pantam' tone and timbre, relative to a fully hammer-shaped shell or a rolled shell." The only company deep drawing shells for years was PANArt, and they never provided materials to handpanists, of course. Eventually, Matthieu of Shellopan in France and Ralf of Ayasa in the Netherlands began producing deep drawn shells and continue to sell them to other tuners since then. Many makers today got their start and formed their sound with these shells, and still buy them to this day.

The deep drawing process of forming shells is the most expensive and difficult to setup, but the most consistent and fastest method to quickly create hundreds of usable shells if desired (and we do desire!). Two industrial rings come together vertically, with a large curved press bending the flat, steel sheet into a curved mold. Deep drawing has the advantage of allowing additional material from the sheet to slip in between the rings while being pressed, meaning that the shell isn't thinned out in any sections and consistent thickness from dome-to-rim.

## Shaping, Heating, Tuning: From Raw Shells to Finished Instrument

Once the shells are formed, it's time to move on to pressing dimples, shaping the ding and tone fields and then tuning!

First comes the layout. Magnetic stencil templates that are specific shapes and sizes for each tone field/note are placed around the inside of the shell, with some at specific angles towards or away from the ding to avoid unwanted activations between related octaves and harmonics. These mark where the tone fields will be hammered, and have their centers

hammered/pressed into a dimple as a stability anchor point. A permanent marker is used to trace the inside and outside rings of these magnets so that the dimple areas are measured visually and can be accurately pressed easily. This is the stage where the tuner decides on the scale and what notes will be placed from each octave to create it, and alterations in the order, or layout, of the notes make the different “scales” we know today like Kurd, Amara, Ursa Minor or Mystic.

Second, the dimples will be pressed with a hydraulic press in most cases, but can be done by hand hammer as well. A thicker, hockey puck-like block of metal in the same shape as the magnetic stencils is placed on the outside of the shell to hammer into for the ding, and inside of the shell for each outer ring tone field (hammering in the opposite direction for concave/convex or apex/impex dimples). These pucks are heavily duct taped onto the shell to hold them in place. I suppose with certain mechanical presses, the tape is unnecessary as the dimples can be pressed with a simple and momentary pull and release of a lever while the shell is held down against them carefully. This is something I’ve seen many times in videos.

Third, the shell is placed into a large and heavy ring of metal on a barrel and bolted down all around the rim. The barrel usually has a concave mold inside to hammer the shell into, such as in the deep drawing method of forming the shell in the first place. The tuner will use hand or air hammers at this stage to shape the body, balancing the amount of tension in the body and where the tone fields will be. This is also the step where the ding shoulder and borders of the tone fields are shaped by hammer. Some tuners define the shoulder/borders more sharply than others and this is personal choice based on the timbre and visual aesthetic they desire. The Hang has almost non-existent note borders and nearly no ding shoulder, while handpan borders range anywhere from Hang-like to very sharp.

Fourth, the first heating session to prepare the steel to be tuned begins. In the past, shells were heated with hand torches, a fire-shooting tank and hose, which looks like a fire extinguisher funny enough. Other people have and still use ceramics kilns and pizza ovens, and some have massive, industrial brick ovens like Numen in Barcelona (check out his video, “*What it takes to Build a Mystical Handpan*” online for a visual on all of these steps and also his multi-shell oven!). Once they cool down, the arduous tuning of the tone fields begins using Linotune™ to ensure the fundamental, octave and fifth harmonics are aligned (it’s in Mario’s video, too). After the first and second (sometimes third or fourth, in the case of D2 and below dings) tuning

sessions, the shells are re-heated in this way, but I'm not 100% sure all makers follow the same process in this regard and some may have other "recipes."

Finally, the shells will be polished, glued together at the rim with an industrial glue that bonds the two shells together stronger and stronger over time (also opening up the sound over the course of 1-3 years), and after 2-4 weeks of curing, the tuner will do a final "fine tuning" session or two by hand with a smaller hammer (both reaching inside the handpan via the gu and from the outer surface). Slap a fresh layer of oil on it (gun-cleaning oil you can get pretty much anywhere) and the handpan is ready to be packed up and shipped!

## Extra Notes About Extra Notes

Two terms to be familiar with are *extended handpans* which have notes on the bottom shell, and *mutant handpans* which have extra 5th-6th octave notes between the outer ring and the central ding. Many people also use "fully extended" for both, as mutant pans almost always have bottom notes. Since tuners began experimenting with more tone fields, there has been *a lot* of research and development into the effects of interference and harmonic activations between the top and bottom shells and just how many mutant notes one can place, where and why.

Bass notes on bottom shell, for example, are tuned primarily for their fundamentals only. What I've been told is that they are there to serve as bass tones for chord progressions, and therefore don't need to have as pronounced fifth/octave harmonic activations (though that remains a possible stylistic choice).

## Lions and Tigers and Bears, Oh My: Monstrous Handpans

I'd like to preface this section and say that I've done my best to search online and take this information from YouTube and Instagram, check post dates against each other, and differentiate between 53cm or larger shells in terms of these accomplishments when the info was available. It's increasingly difficult to contact the already severely hermit makers who have this sort of info stuck in their heads and not written in the video descriptions most times, if there is any description at all. I hate having to cover my tuchus like this, but that's the modern age! Hopefully I got most of the records listed below, and I suppose any I've missed will have to go

into a future website connected to this book with quarterly updates, as publishing new books constantly isn't viable. Let's get into the milestones!

In 2022, Arcana Handpans created B1 and A1 handpans in 53cm shells, hand-sunk with 1.2mm 18 gauge 430 stainless steel. Fabian of SubtleSoundsHandpans also created both a C2 and B1 ding with 7 tone fields in 53cm stainless steel. As of July 2025, Matteo Gusmeroli of Harmonic Sculpture holds the current record with a *fully extended* C2 Minor 16 layout on 53cm. I was unable to locate any other video proof on YouTube from other makers making very low dings publicly apart from SubtleSoundsHandpans, Harmonic Sculpture and Arcana Instruments, though I'm sure it exists and that most makers who have conquered F2 have probably (at least privately) attempted (and succeeded at) tuning an E2 and D2 stably at least once.

Arcana have built several "Goliath pans" at ~76cm, holding the title for largest handpans in the world, with multiple D2, C#2 and C2 layouts like Amara, Aegean, Hijaz and Klezmara. These sport a full array of 9 top notes and up to 12 bottom notes. Leaf Sound Sculptures has created mini shells that hold a single, very low ding, ranging down to the C2, of which I would *love* to see a full octave set someday.

In the complete opposite direction, many makers have also made mini handpans from 48cm down to tank drum sized pans. The most notable examples I found were from EchoSoundSculptures with their MiRim, which they were making in their early years, and Taopan's mini handpans which are often double-sided, dual-scale pans, sometimes without a gu. While not monstrous in size or depth of tone, these pans are equally monstrous in their construction difficulty in that fitting 53cm layouts in much less space is quite a challenge. Jan at Taopan is the only maker I'm aware of that is continually pushing these boundaries and making lower, more extended, multi-scale, mini handpans.

Satya Sound Sculptures' Antonio Arvinds sits in a category all of his own as he continues to hold the world record for highest number of tone fields stably and accurately tuned on two 53cm shells, with even more notes planned on future experiential pans, as well as being the first to pioneer low A2 and F2 dings with a full eight or nine tonefields around it with mutant notes! I had to come back to edit this page since writing it, because he originally only included 2 mutant notes on each of those pans, but recently surpassed his own record with the F2 Govinda with 3 *mutant notes* made specially for Leander Greitemann. Bravo and a slow golf clap to you, sir. Antonio is the reason that much of the South American community of makers and players exist

today, having injected the scene there with his years of learning from Echo Sound Sculptures and other notable makers in Europe in the early 2010's.

## The Dangers of Handpan Building

Not unlike most aspects of our lives, even making beautiful instruments can have its pain points. Handpan construction is arduous as best and permanently scarring and/or physically disabling conditions at worst (in the case of nerve damage easily caused by the amount of air-hammer usage makers endure daily), which Duncan Arnot of Meridian Handpans detailed in our interview:

*“Duncan: I know makers who've been hammering for many years, who literally struggle to sleep at night without lying on their back because their arms are destroyed and their joints hurt a lot. It's a very real danger and our industry is so new and young and the use of air hammers is so fresh, that we don't know much and there are no long term studies about the ramifications of it all. But they don't know it necessarily. I think it's a very easy thing to look the other way from the dangers of the vibration. But there are many makers who spend two or three hours a day, if not more, using air hammers. I did all the correct calculations to quantify the legal limits of the use of an air hammer, and in the UK, which I imagine the regulations are similar in most western countries, **I exceed the legal limit within ten minutes of use of an air hammer.***

*That ten minute limit is where, if you use it to that amount every day, then within ten years you have a 10% likelihood of having irreparable nerve damage to your hands and chronic-pain within ten years, which can be debilitating. It can mean you can't pick things up or sleep because of the pain. If you go up to 30 minutes, you reduce that to about five years. There are plenty of makers out there who use it for **many times longer** and have done it for more than **five or ten years.**”*

He said there exists a growing group of veteran makers who are trying to sound the alarms as well as develop machines that will at least hold air hammers stably (I know I've seen a video of this on Instagram, but forgot to save it. If you know them, please email me!). You can then merely guide the direction of the machine with handles that are largely removed from the vibrations of the tool. This still allows the maker to accurately shape the shells by moving the

larger contraption, which glides effortlessly. There are also health-risks associated with the industrial tools and chemicals used: fumes and vapors from solvents, the risk of injury from grinding the rims of the handpans, muscular damage from poor posture or stress on the body both when shaping and tuning, and also polishing the pans before and after tuning, with some polishing tools weighing over 10 kg each. Handpan makers must be extremely careful with their physical health, taking breaks and being smart about the aforementioned risks if they want to maintain a typical standard of health as they age.

# The Theory of the Handpan

When discussing the theory of the handpan, what I specifically want to speak about is the way that handpan “scales” are formed or laid out, hence the common terminology “layout” that you’ll encounter more and more the longer you’re in the scene. The way that handpans are played is as unique as everything else about them. For the most part, with a handful of exceptions, the ding is the root of the scale that is being laid out around it on the tone fields. In many cases, the interval jump from the ding to the first tone field is a fifth, sometimes a fourth. Some layouts simply continue up the solfeggio (F, G, A...) while others such as F Low Pygmy jump from F2 to F3 (but that particular layout and its naming conventions have been confused by the community over the years that I’ll address shortly, thanks to being enlightened by Emma Mumi of Elaia).

I’ll give a short layout (hehe, see what I did there?) for this section of the book and what we’ll learn in it. First, we need to discuss how handpan “scales” work theoretically. Second, we can move on to actual playing/hand techniques. Then, apply that info to a few minor layouts, comparing them and how we’d play them. Next, we can discuss how extended and mutant handpans can open up new compositional possibilities and get into the ergonomics of layout design choices. After that, it’s important to also talk about mixing scales by adding “out of key” notes to the bottom shell or borrowing them from another pan altogether, as has been the main use case in the last decade.

Finally, I’ll close out the chapter with what is my favorite part of handpans after playing them: a glossary of all the scales that are generally available today and a poetic description of their ambiances in words that anyone, theory egghead or musical novice alike, can easily understand and appreciate. It’s my hope that people will not only enjoy the imagery I create, but that it can help people decide on which scales fit their musical voice or mood that they wish to experience and/or express themselves with.

## How Handpan “Scales” Work

Scales, in terms of handpans, are not actually scales in the traditional sense you’re probably thinking. They rarely include the full solfeggio group of notes across one octave, in

order (do-re mi-fa-so-la-ti/si-do). It is more accurate to call the scales “**tonal sequences**” and “**layouts**” for this reason. As handpans are tuned **diatonically**, notes are all part of the same key, so nothing clashes and you can’t play a “wrong note,” but you *can* play dissonant *chords* (when two notes are a halfstep away from one another, the sound is very tense and warbly as the frequencies’ wavelengths clash inharmoniously). Layouts are arranged by placing the tone fields in a “left-right-left-right” pattern on each side of the ding, going from the ‘back’ of the shell at your stomach, around the sides of the ding, until they end opposite you at the ‘front’ of the shell. This also tends to create two chords on either side of the instrument, typically one major and one minor.

When makers post a layout demo video online, they’ll write a slash “ / ” after the ding, and parentheses “( )” around bottom notes, while bottom notes lower than the ding come before it in this order. Quite often, due to space limitations and note interferences, some notes in the solfeggio are skipped, and sometimes only in one of the octaves, like a Bb4 removed as we will see below. Let’s take a non-mutant, **extended D Kurd 16** as an example:

**(Bb2 C3) D3/ (F3 G3) A3 Bb3 C4 D4 E4 F4 G4 A4 C5 (D5 E5)**

There are two bass notes (usually apex “dings”), Bb2 and C3 on the bottom right and left respectively, then F4 then G3, before coming up to the first tone field at your stomach, A3, with your right hand again. Once you reach the 9th note, C5, the next two right- and left-hand notes are back on the bottom shell in the front of the pan. These days, those 2 notes are usually added on the top shell as mutant notes, while 3 is even more common (why not more?!). If you look closely, you’ll notice there’s no E3 or Bb4 (*because Bb4 doesn’t work in 53cm as mentioned before*), and the layout jumps from D3 to A3. If it weren’t being extended, you’d lose the F3 and G3 from that octave as well (they don’t exist in standard or mutant Kurds, only bottom note or “extended” pans).

Handpans, for reasons regarding physical space, cannot always recreate a layout in perfect solfeggio as on a piano or guitar. Kurd, in my opinion, shines most when extended beyond 14 notes with Bb2 and C3 below as bass notes for chord progressions, and higher notes to extend melodies. A much better example of the idea of “tonal sequences” versus full scales would be **Aegean**, which is a layout of the Lydian mode of A Major: D-E-F#-G#-A-B-C#:

**D3/ F#3 A3 C#4 D4 F#4 G#4 A4 C5**

First, we have the jump from D to F#, skipping E3, G#3, B3, and E4, adding G#4, and then skipping B4. So many notes are left out, yet this layout of the Lydian mode still embodies the sound and feeling of the Lydian mode perfectly: a major-leaning, dreamy and spacey layout that gives a slight amount of tension that doesn't quite fit one's expectations from the major feeling overall, but such is the Lydian mode.

I want to write a final note about layouts and the typical tendencies of the community and what people promote to new players. Kurd is fine if you wish to follow the beginner tutorials on YouTube, which are often made for those without musical experience at all, but I *highly recommend* buying an extended (12-15 notes) Amara, Integral, Ursa Minor or Voyager in D Minor with the A2/Bb2 and C3 bottom dings for chord progressions and arpeggios. These are much more expressive and inspiring alternatives that you will grow into fully utilizing compositionally over time. Also, you won't want to resell or upgrade to more notes in 6-12 months when you already have what I believe is a sweet spot for beginner to intermediate players in terms of composition and range. Having an extended pan like those is to have a compositional tool that should last you at least 5+ years worth of unique writing, if you put in the effort. My first teacher, Leo Trincabelli, wrote multiple, full-length albums with just 8-note Kurd and Pygmy, for example. The creative possibilities are endless if you put in the work!

## Basic Playing Techniques

The way that the handpan is played is with a left-right-left-right pattern with the hands, always alternating, called "**hand-to-hand**" playing. The next basic technique is called "**split hand**" playing, which uses the thumb on one tone field and one of the other fingers on the tone field directly above it for playing chords and arpeggios. You begin up the scale with your left hand on the ding (or right if you have a 'left-handed' instrument, but with handpan this is pretty irrelevant since you must become ambidextrous anyway), and then play the rest of the tone fields with hand-to-hand, beginning with the lowest note in the circle with your right hand. Picturing a creating a ripple in a body of water without splashing much or keeping your finger submerged is an excellent way to imagine the striking technique. "*Touch it less,*" I always tell people.

Playing chords is quite easy due to almost any neighboring pair of tone fields making a perfect 3rd, 4th or 5th interval. You can also skip a neighboring tone field to the next in the circle

and, in most cases, also find a diatonic chord. Split hand is necessary for triads and sevenths (3 or 4 tone fields at once) as well as playing arpeggios more easily. Watch any seasoned handpanist play and you'll instantly see how this translates into all kinds of rapid-fire runs and fills.

Besides this, you can also use virtually every part of your hands to play handpan, which is something many of the greats will often ask, "*Well are you using your ring and pinky fingers? What about your knuckles or fingertips?*" Their sonic capabilities are quite vast. There are a plethora of percussive techniques and a whole world of sounds to be drawn out of these gorgeous discs. The type of steel used has a huge impact on the sonic palette of your handpan, and the shaping and tuning techniques as well. How you play with different types of steel with mutes and finger techniques borrowed from other instruments such as tabla, doumbek and daf will take you on quite a journey with handpans. Many techniques people are using today were only invented or translated to the handpan in the last few years.

## Layout Shootout: Minor Scale Comparisons

I think one of the most interesting points about the way handpan layouts work is how changing one note, removing one Jenga piece from the tower and not always replacing it with another or even putting that same note on the top, can vastly change the mood of the layout. The easiest way to describe this will be to use the Aeolian (Minor) mode in D. Let's take a look at three different layouts:

**Kurd: D3/ A3 Bb3 C4 D4 E4 F4 G4 A4**

**Amara: D3/ A3 C4 D4 E4 F4 G4 A4 D5**

**Ursa Minor: D3/ A3 Bb3 D4 E4 F4 G4 A4 D5**

Notice how they all begin the same way, but differ on their second and third notes. These subtle differences, and the available melodies due to them, will greatly change the way that the handpanist responds to the emotional journey created by said intervals. Music is math and also a language, and like words, the spaces and relationship between notes have an emotional atmosphere and impact. As you'll read in the final chapter of this section describing the scales,

these differences in the emotional journeys created have different moods overall and can create very different imagery in your mind's eye and bring up specific emotions.

The Kurd has one octave resolution point, while Amara and Ursa have two. Amara's D4 and D5 resolution points give it a kind of "closure" that the Kurd only has between the ding and D4. The Ursa Minor's jump from A to Bb3 to D4 brings back the minor-major interval jump of the Kurd, but has a much more "Hijaz-like" sound. There is also something to be said about *where* your resolution points (octaves) are physically on the layout. The Kurd has 3 notes before it reaches the first octave, whereas Amara and Ursa only have 2, and both resolve on the high D5 whereas Kurd doesn't resolve unless extended to 9 notes around the ding (a.k.a. D Kurd 10).

## Extending Compositions With Extended Layouts

### Ergonomics

The melodies you're likely to play are heavily shaped by the amount of space between octave resolution points, the chords available in each tonal range, and how the notes fall under your hands when considering which hand is dominant. These factors naturally steer you toward certain musical ideas over others. The rhythms you might use on certain notes are affected by their location, determining what's comfortable, easy or even physically possible to play. Sometimes, the emotional impact of two notes that never touched in another layout, now suddenly next to each other, can open a musical path you didn't know existed. It's hard to fully grasp this concept without actually experiencing it playing two similar physical handpans like Kurd vs. Amara. An experienced musician familiar with rhythmic concepts and ear training can simply swap to a different pan and voilà: a new song mere minutes later!

When extending layouts, makers often consider the physical possibilities with interferences, but also the ergonomics of how it's played with hand-to-hand style. Sometimes they choose to place certain notes as mutant notes on the top shell instead of the front of the bottom shell, because the melodies made possible with smaller movements over these much shorter distances are prettier and/or easier to play. This can also make double strokes in that range possible as well, which is a very useful technique when trying to play more complex,

syncopated or polyrhythmic melodies. Eric “Amarok” Sero and Pablo Piris of Piris Instruments, two of my favorite handpanists and musicians, both do this often in many of their videos online.

## Out of Key Notes

Many makers have chosen to add notes that are missing to the bottom shell to have multiple layouts be possible in a single pan. This could mean adding 4th, 6th or 7th scale degrees on the bottom shell to open up the ability to play both Kurd or Amara on one pan, or Hijaz on either of those layouts. For example, B2 Mystic has been extended on the bottom shell to also include the notes for **scalar** playing (*playing the notes of a particular scale in correct solfeggio order*) of the Aeolian mode layouts Kurd, Amara, Waples, Ursa Minor, Integral and a 7-note version of Mystic. In this format, you can access these different moods, although probably not in the same rhythmic ways as having those scales on the top shell. Scalar play would be most useful for single note melodies and split hand arpeggios to accompany a pan whose top shell is made in the layout and key you’re playing, so maybe the Waples or Integral notes matching a top-shell-only pan in one of those layouts.

# Handpan Scale Glossary

This section lists the typical handpan scales you can order today from virtually any maker. Outside of this list there are a plethora of scales that were only really ever offered en masse by PANArt, and perhaps copied by some of The Big Five, but are largely abandoned. Some makers have collaborated with handpanists on custom scales, or simply offered new experiments that often get snatched up by the virtuosos. A2 Jabbar, A3 Lady Maria and Gb2 Surna/Shambhala/Australis/Shangri-la (four Nordlys and La Sirena fusions) are a few examples that come to mind.

Each scale is accompanied by the Western modal definition and a short description of what it sounds like in more poetic terms. I imagined this specific chapter to be one of the most useful and often read in the entire book, and quite likely the most useful for new players who feel overwhelmed by all the physics and theory vocabulary thrown around by more seasoned players. Pentatonic scales tend to be more introspective, while hexatonic scales are almost always dreamy, nostalgic and mysterious. I might be the only one who thinks this, but it's something I've noticed over the years. Each time I hear this ambiance and count the notes, I have an "*Aha!*" moment when I see a layout is hexatonic (*Ursa Minor, Aegean, Nordlys, Oxalista, Mystic, Equinox, Ysha Savita*).

I must stress that playing other layouts in a certain key is a good idea before settling on D Kurd simply because someone told you "*everyone starts with Kurd*" or "*It's the easiest scale*" (not true, there is no 'easiest' to play, it's subjective) or "*that's what all the YouTube tutorials are on,*" which are **horrible** reasons to choose a certain layout. Over 90% of the time you're going to be playing handpan alone, as there may not be handpanists with the same key/layout or any nearby at all. In my case, oftentimes there are no musicians at all who understand how to play in specific keys or what that even means, so you might as well choose the layout and tonality that touches your soul and feels like the one you wish to express yourself with, because you're going to play it alone the vast majority of the time.

Music is a language and is amazing when shared with others, but is primarily a means by which to connect deeper to one's own soul, and focusing on the external and what everyone else is doing or likes is the exact opposite. More people than I can even count, both interviewees and not, have exclaimed that the handpan is *the perfect tool* for doing this exact type of deep dive

into oneself and exploring your emotions. Find the scales that best help you find yourself! When you feel comfortable with where you are on that journey, or have done it on previous instruments, maybe then reach out to play with others!

# Minor Scales

I will begin with the minor scales since people buy this vastly more often than major and harmonic minor scales. Also, apologies ahead of time for showing blatant favoritism to some scales that have obviously inspired me more than others, haha! Let's jump in!

## Kurd (Aeolian)

In the right hands, it can sound mysterious or even Hijaz-like if played the right way rhythmically. It's named after maqam Kurd from Arabic music traditions, so this makes sense. Overall I find Kurd to be a poppy, upbeat scale that sounds like being at the beach with warm, fair-weather and a soft breeze. It's touted as the "easiest scale to play," but I very strongly beg to differ and say that literally all of the other minor scales below are more consonant and prettier sounding, especially when extended, and create more chords that feel and sound great to play. Kurd is great if you want to follow tutorial videos online, but once you get out of beginner land, it's on equal ground in that sense with any other scale.

## Celtic Minor/Amara (Aeolian)

A softer, more approachable layout of the minor scale with a very strong "Irish jig" sound to it (hence the name), especially if you play it with swung, bouncy rhythms. The E Amara 20 has become the defacto poster-child of this scale. The Amara has one of the most satisfying resolutions of any scale I've played - either at the high E5 or lower E4 octave, especially when playing chords. This scale feels like a big, cozy hug, full of emotional expression and inspiration.

## Pygmy/Low Pygmy (Pentatonic Aeolian)

Mysterious, dreamy, open scale that typically spreads across a bigger range due to being pentatonic. I personally feel I'm transported to a magical, secret garden with subtle East-Asian vibes when I play this, especially the F2 Low Pygmy variant. It can be introspective and meditative or celebratory and triumphant, but being between major and minor, tends to feel more neutral in color and mood, like a calm brown or forest green.

## **Integral (Hexatonic Aeolian - Omits 4°)**

This layout, like most hexatonics, has a dreamy, mysterious ambiance and makes me feel as though time has stopped and my breath with it. It transports me into a long-forgotten sacred grotto hidden deep in the jungle, tucked inside ancient mountains devoid of humanoid creatures for millennia. Towering waterfalls cascading into trickling pools down the mountainside, massive rocks covered in moss and vines of wildflowers, a soft sunlight peeking through the canopy overhead, statues with faces carved into them littering the edges of the space. This atmosphere is especially strong with and shines particularly on the extended layout, which I recommend as with the Kurd. It feels like a powerful yet gentle presence that has lived there for eternity. The nerd in me feels as though I'm somewhere on Tallon IV from Metroid Prime.

## **La Sirena (Dorian + Maj7)**

Ahh, La Sirena! The most mysterious and murky of all the handpan layouts that exist. When I hear this scale, I feel as though I've scuba dived into an underwater tunnel and as it goes on, the walls transition into a kind of transparent crystal with rings of rainbow-colored lights pulsing in rings that run along the entire circumference and length of the tunnel. I can see giant squids and jellyfish, and all sorts of fish big and small, all equally bioluminescent and pulsing along with the music. This scale feels like an underwater wonderland, but one that is very slowly churning, ebb and flow, like the waves on the shore of a beach. This scale has been called "jazzy" by literally everyone who describes it to me, and I don't disagree! I feel its Dorian nature makes it feel hypnotic and impulses you to keep playing and going deeper, not unlike the lure of the siren for which it's named.

## **Akebono 8 / Hokkaido 9 (Japanese Pentatonic)**

Akebono is one of the quintessential Hang and early handpan scales, and a "love it or hate it" scale for many. It's deep and hypnotic for a pentatonic scale. It also feels like being transported to 7th century Japan in the land of samurai-led shogunates. The extension of Akebono to Hokkaido with 8 notes around the ding solidifies that atmosphere much more

strongly, and pulls you even deeper into the hypnotic dance that this layout exemplifies. I hope that the Hokkaido extension brings the Akebono haters a change of heart.

## Voyager (Pentatonic Aeolian)

This layout is similar to Pygmy being that it's pentatonic. The interval order is slightly different, but the ambiance is the same: the feeling of focus, presence and clarity (especially when it's made on very low register dings). These pentatonic minor scales can feel very grounding and centering, and the pentatonic nature of this scale makes melodic resolution very easy and comfortable to navigate. It reminds me of Amara heavily, but the one missing scale degree gives it a *slightly* darker or heavier vibe, which is in line with how I feel the Pygmy layouts.

## Magic Voyage (Pentatonic Aeolian)

Yet another cousin to the Pygmy scale, but this time a dreamier start at the bottom of the scale before rising up into the clear presence of the Low Pygmy scale. This layout has a more open and brighter feeling than Pygmy that will take you on a journey through the clouds and into the sunset. Whether you're feeling meditative or percussive and fiery, this layout can calm you down or raise you up depending on how you approach it.

## Ursa Minor (Hexatonic Aeolian)

This layout feels like laying in the sand dunes of the desert outside an ancient Arab city at night, the full moon and stars beaming brightly above, with a cool and sweet breeze gently blowing over you. As you play the scale further and further, you begin to lift up, off the ground, and float up into the cosmos. I love to call this layout "Moonlight Hijaz."

## Mystic (Hexatonic Aeolian)

Mystic is exactly like its sister Ursa Minor above, but with different scale degrees for the final three notes. This gives it the same "Moonlight Hijaz" vibe in the bottom half of the scale,

but with a brighter top end. Low Mystic feels a bit more melancholy than Ursa Minor, while the normal layout's final intervals sound more open and happier.

## **Equinox (Hexatonic Aeolian)**

While also a hexatonic layout like its siblings, Ursa Minor and Mystic, this particular layout feels and sounds more joyful and hopeful rather than mysterious, melancholy or darker. The bottom half of this layout gives that hopeful, uplifting feeling while the last few notes give a hint of mysteriousness like its siblings. The combo of a jazzy minor and bright major chord results in this sweet, smooth sounding atmosphere.

# Major Scales

Quick note: I have to be honest that the majority of these layouts all sound the same and don't give me drastically different experiences when listening to them. The Ionian and Lydian modes (two major scales) *generally* sound the same *on the handpan* and all give “peaceful, playful vibes full of sunshine in the morning.” If that’s what you’re looking for, you really can’t go wrong with anything listed here. Listen to some examples and pick what you like best. Aegean and Nordlys are surprisingly different, but still major-leaning overall.

## Ashakiran (Lydian)

No matter who I hear play it, this layout consistently gives me beautiful, fairytale-like sensations. I imagine beautiful castles and people dressed in medieval styles. Ashakiran feels full, like a big warm hug from the sun. Some people playing this make it feel very epic and triumphant.

## Sabye (Lydian) [Pronounced “sah-bai”]

This version of Lydian feels like a romp through a field of flowers, or the ecstatic start of a journey by a story’s protagonist. Rather than the grandiose and sunshine vibes of Ashakiran, this feels more subdued and calm, very peaceful and slow, like a trickling stream in a forest.

## Golden Gate (Lydian)

This layout feels curious, slow and unfurling, like a flower opening in the morning light, animals waking up, and life starting its daily routine. It’s very soft and calm in typical Lydian fashion like its two siblings Ashakiran and Sabye.

## Paradiso (Pentatonic Ionian)

Paradiso is similar to the previous layouts in this list, yet it feels more “rounded out” in that it’s pentatonic, repeated-notes nature, so it feels more balanced and full because of these

extra “matching pairs.” There is a bit more of a cinematic or storytelling vibe for me with this one in particular.

## **Oxalis/ta (Pentatonic/Hexatonic Ionian - Omits 7°/Adds 4°)**

This particular layout has a very dreamy and introspective feeling to it. It feels like a sunshower, but without being overly sappy like other major scales. The Saraz Oxalista “added the A back in,” a play on words with the name and also literally adding the missing A note back into the G Major layout, making it hexatonic.

## **Aegean (Pentatonic Lydian - Omits 6° & 7° in non-extended versions)**

Many say that this one’s name suits it perfectly and that it aptly represents the feeling of being at the Aegean sea on the Greek islands very well. It is moody and mysterious, and can be either tense and moody or very smooth and dreamy depending on the play style. It’s interesting to me that it can be so close to the Nordlys scale in terms of the theoretical scale used, but a slightly different arrangement of the notes, and omitting an extra one, completely changes the vibe to one more melancholic than the euphoric possibilities of the Nordlys, for example.

## **Nordlys (Hexatonic Lydian - Omits 7°)**

Easily one of my favorites and the newest layout to become popular, created by Eric “Amarok” Sero and Jordi of Manik in late 2019 and released in early 2020. “*Northern Lights*” in Norwegian most definitely captures the feeling of being in the Norse forests looking up at those awe-inspiring, electro-magnetic wonders and feeling the vast expanse of both terrestrial and non-terrestrial space. I often say it feels “lofty,” as though you’re floating endlessly through the layers of the atmosphere and back down into the clouds and up again. It’s a layout that fluidly ebbs and flows between a feeling of nostalgia, both melancholic and euphoric.

## **Ysha Savita (Hexatonic Ionian - Omits 6°)**

Ysha Savita is melodic nourishment for the soul, optimistic and full of hope. It's a peculiar major layout that doesn't share the same cliché sappiness. Its dreaminess is balanced with slightly melancholic nostalgia. It's a crowd favorite and unlike most early layouts, it still remains relevant and popular today.

## **Raga Desh (Pentatonic Mixolydian)**

This one is a playful, cheery layout taken directly from Indian Carnatic music. It will transport you deep into the jungles of Kerala, leisurely walking along a river bank with birds chirping and cicadas buzzing, the mid-morning sunrise warming everything around you while the morning breeze wafts gently through the trees. I adore this layout when extended with bottom notes that open up maqam Hijaz when snuck in between the top shell notes. I *highly* recommend that extension for intermediate to advanced players looking for a “spicy major” handpan (which doesn’t exist besides Onoleo, which I find limiting, whereas this feels deeply expressive).

# Harmonic Minor Scales

## Hijaz (Phrygian Dominant)

Ahh, the classic Hijaz! This is a crowd pleaser for sure, and a time-tested favorite of all percussionists that have joined the handpan community (as you can guess from my massive description of it). The nature of playing maqamat (scales) in small parts (the two jins, or ajna plural) is perfectly matched in the handpan's diatonic nature. This scale feels like being in an old Arab market with the citizens and travelers hustling and bustling about, hagglers shouting and advertising their goods, while children and animals scream and squawk through the streets. The hot desert air and sun beating down from above can be felt through this scale. It's both deeply emotional and can be joyful and uplifting, depending on how you play it. Some have even described Hijaz as a desert warrior riding a horse along the dunes, overwatching his city nearby. If you've ever heard music in any Hollywood movie while in a desert, more likely than not it was using maqam Hijaz, named after the region in Saudi Arabia it hails from.

## Romanian Hijaz (Ukrainian Minor)

This is allegedly the most difficult layout to play and compose with according to most of the community, alongside La Sirena. The two tension points within it do make it a very deeply emotional layout. It gives a Eurasian blend of both Hijaz and a deeply melancholy minor feeling of struggle and sadness that (given the name as an admitted bias in influencing this description) makes me think of eastern European ballet, folk or “gypsy” music. This layout tells the tales of the woes of the human experience and human drama pretty universally for all who hear or play it. It's really crazy how accurate this description is once you hear it being played. If you are looking for something very unique and challenging, romantic and deeply poetic, then maybe this is the scale for you.

While this may not be for everyone, the chords can be so colorful and deeply expressive in ways that no other layouts are. Don't be afraid of this description, though! This will likely be very interesting for intermediate to advanced players looking for something very different and

fresh, but I have interviewed two players who began on this layout and now own it in multiple keys, extended and not, and absolutely love it. I sold one to an intermediate player and she has

been soaring with it in ways that I never thought to play it myself and adores it. Try one out with a friend before buying, but do try it at least once, it's quite an experience!

## **Saladin (Phrygian Dominant - Alt. Hijaz)**

A one-note-different arrangement of the Hijaz layout, so I would give the same description as before, but add that Saladin feels fuller or deeper because of that shift, jumping from the “root” note on the ding to the 4th scale degree instead of 5th as with Hijaz (D3/ G3 vs. D3/ A3). Just as with Kurd, Amara and Ursa Minor, removing or adding one note in a sequence can greatly affect the melodies or chord progressions you’re likely to play, and this is the Hijaz version of that experience.

## **Klezmara (Phrygian Dominant - Klezmer)**

As the name suggests, this is a traditional scale in Jewish Klezmer music. This particular form of harmonic minor feels much more mysterious and a bit less tense than Hijaz and Saladin. It differs by one note and that, again like the Kurd/Amara/Ursa Minor trio makes all the difference. This alteration of maqam Hijaz feels slightly more triumphant, open and emotionally distinct from Hijaz in a way I find difficult to describe in words due to this simple note change.

## **Onoleo (Harmonic Major)**

Onoleo is the only layout (other than blending Raga Desh with Hijaz) that gives a “spicy major” vibe, but one that feels much closer in mood to the Romanian Hijaz layout than Hijaz or Raga Desh. This scale is literally “Dance of the Sugar Plum Fairies” on a handpan (check out the video by Fabio Stomato on YouTube, the transition into bossa nova is amazing!), but sadly that is the one mood and ambiance that it provides. It’s one of the few “one trick pony” layouts that isn’t versatile, unfortunately, and its popularity reflects that status.

# Practical Notes for the Aspiring Buyer

This section of the book is simply going to be bulleted points to keep in mind when buying handpans. Straight shooting without the fancy frills: just helpful tips I can think of based on my own mistakes and things others have echoed in the interviews.

## Buying a Handpan

- **Watch hundreds of videos on YouTube and Instagram.** Find layouts you like and then search for that scale key/name and watch many different handpanists play it. Pay close attention to how their styles make that same layout sound very different. If you’re still convinced you love that particular one, find the maker with the “best quality for price” for you and go for it! Save and get your dream instrument! Just make sure that you’re aware of whether you like: the song, the layout, the maker of *that particular handpan* in the video, *that particular player* (no matter what pan they play, as is the case with many people who love *Malte Marten*, *Mar Loi*, *Golsa Nazari* and *Daniele Rebaudo*), or you like *that particular type of steel* (stainless, ember, low carbon or nitrided).
- Today, the vast majority of makers will **ask for a deposit up front** and you **pay the rest of the amount upon instrument completion, plus shipping costs, hardcase, etc.** If a maker is being pushy with you about money: *Run*. 9 times out of 10 it’s going to end poorly for you. Don’t deal with anyone who makes you uncomfortable or feels strange in the communications or “rules” about how they run their business. I guarantee you there are at least 50 other people with similar quality and prices without any weird energy.
- **The person you choose is going to be putting their heart and soul into your instrument, so you want to be sure that aligns with you.** You’ll likely go back to this maker for re-tuning and will have some kind of friendship with them ideally, so you want to pick someone that you connect with. Any of the makers in the interviews (check the website attached to this book) would be a great choice. Feel free to email me if you need further suggestions or information not listed there, as I do know many, many more than those who I was able to interview.

- A quality handpan should cost somewhere between \$1300-1600 for a standard 8+ ding handpan in stainless steel, sometimes even ember. This is typically written as “D Amara 9.” There are very few exceptions to this rule and some makers do offer “student” models that are cheaper, while still being stable and sounding beautiful. Perhaps they remove aesthetic touches, or don’t sell the instrument with a case in order to keep costs down. I’ve personally encountered some makers who charge only \$1000 for the same ember steel standard pans that others charge \$2100-2400. I would not pay more than \$1600 for a typical, standard pan unless the thing sounded mind-blowingly angelic or was made by Duncan at Meridian Handpan with a high-end piezo pick-up and ¼” jack output built in. **I highly recommend avoiding mass-produced pans** from companies that make many types of instruments like **Sela/Novapan/Asteman**. They are not specialists in handpans and lack there years of study and practice necessary to make high quality and stable instruments. **Avoid anything on Amazon, Aliexpress, Guitar Center** or any similar marketplace or music store: these are even worse than the aforementioned brands. **This is simply not where high-quality handpans come from.** The money you waste, on what I consider toys at best, would be much better spent as a deposit towards a real handpan, not some cheap knockoff.

## Pantam vs. Handpan

**A pantam is the exact same thing as a handpan**, it’s just another name someone came up with for the instrument based on the **steelpan** and the **ghatam**’s names put together. If someone tries to sell you an “*exclusive pantam*,” with claims of superior quality or radically different production methods “*compared to handpans*,” they’re a snake oil salesman, and it’s best to walk away. Fast. I’m speaking from personal experience here. If someone uses pantam because they simply like the name, or feel it respects the roots of the handpan better, that’s cool and another story altogether. This point is if they’re *claiming they’re different and giving a better/worse comparison*, you probably want to be very careful with that person or avoid them altogether. Self-proclaimed greatness is a massive red flag in general, no?

When it comes to the intimate bond formed between a handpanist and maker, you don’t want to be dealing with dishonest or egotistical types. The relationship between performer and

maker matters quite a lot! The creator of your pan is pouring days upon days of their personal energy into your instrument. *Ideally*, they're building it with *you specifically* and your requests about the sound in mind, not just the money they'll make for churning out another instrument. Also, being consistently in contact with you if you have questions or concerns, happy to help and inform you thoroughly and honestly in your journey to find the layout that best suits your needs and skill level, and having good customer service in general are green flags to look for. You'd be surprised how many people utterly fail in one or many of these regards.

## Handpan Care

*I apologize for the capitalization here but these points are direly important!!*

**NEVER PLAY YOUR HANDPAN IN THE SUN AND DO NOT STORE IT IN DIRECT SUNLIGHT OR IN YOUR CAR IN SUMMER - EVER! EVEN IN THE CASE!**  
The heat will cause the metal to expand and the notes to detune, potentially permanently. If you *play* the heated handpan you will *definitely* dent and deform the softened metal and detune the notes. This can result in many hundreds of units of your currency (\$/€/£, etc.) being spent on shipping both ways and paying a maker to retune the pan, on top of potentially waiting months to get it back if the maker is really busy with a wait list of orders that will usually take precedence over your retune.

**DO NOT PLAY IT LIKE A DRUM!** Handpans are extremely delicate for being made of metal and being so large and heavy. The shells are a mere 1-1.2mm thick, and smacking it like a djembe will 100% lead to denting the metal and detuning the tone fields. Imagine that ever hard strike, regardless of the finger used, is causing hairline fracture amounts of detuning to the notes. Multiple that over repeated strikes at that velocity over days (or even under an hour!) and you've got a recipe for a very, very sad-sounding handpan.

**DON'T USE ALCOHOL ON YOUR PAN!** It might be okay with stainless steel, but with other types it could potentially remove special coatings that exist to help prevent corrosion, and lead to almost instant rust/corrosion. This happened to an acquaintance of mine in 2024 with a carbon steel instrument. Within days, the entire top of the pan was severely rusted in big, amoeba-shaped patches. Admittedly, maybe not all pans would be so drastically affected, but it's

probably best to be on the safe side and not ruin your handpan. Ask the maker for care instructions for each instrument.

**Stainless steel is resistant to corrosion, but not impervious! It can develop tiny white marks the size of a pinhead that are basically “stains.” Your pan should only need to be oiled every two weeks or so, unless you play for hours daily.** This can be done with gun cleaning oil/paste. “Handpan oils” are essentially rebranded gun cleaning products and typically cost more for less quantity and the same result. This is also why nobody who sells it will tell you what it’s made of - so now you know! Get a microfiber cloth, put a light amount of oil on the pan (maybe 10-15 drops or a similar amount of paste on the ding) and wipe it down in circles around the whole body. Make sure that the pan is evenly coated . Frog Lube and CLP Plus Paste are two brands you can find online in the US. In Europe, I would suggest Ballistol, but check with your local maker first. I say get whatever works and is most cost-effective.

**Don’t keep your handpan in a closed case constantly (especially if you live in a humid region) so condensation doesn’t form on the surface inside the case.** If possible, set it on top of the soft case, pushing the top down to make a bowl shape, or just open the hardcase. I would argue that even just having the hard case unzipped halfway and cracked while it leans up against the wall on the floor is fine and would be a viable compromise if you have little space.

**The best case scenario for (safer) storage is buying a large shelving unit that’s deep enough to store your pans against a wall in your home.** Watch any professional player’s videos in their studio/bedroom or a maker’s showroom/workshop and you’ll see what I mean. Personally, I got a “Muscle Rack” on HomeDepot’s website (look it up and find something similar in your region) that was wide enough for 2 handpans per shelf, and can store 8 pans, with some soft cases underneath, on the bottom shelf at floor level. Some people have IKEA-looking square shelving, but I never learned where they’re buying them from.

## Lessons

I’m so glad that this came up in the interviews with some of the veteran makers and players. They said, and I agree, they think new handpanists should play on their own for a few months before seeking out lessons with someone. You can learn all the basics to be able to physically play handpan from a technical perspective entirely on YouTube, but then stop! Go

write your own melodies and patterns! Find your own voice! Figure out what *you* have to say, express and share, and how you connect with yourself via music, without any external influences or ideologies. We all promise you will deeply appreciate having done so: we all do!

Many people who play handpan began their musical journeys on it. Maybe tried some instruments that didn't feel right and abandoned musicianship for years before finding the handpan, which felt amazing and stuck! There's something beautiful about taking the time to figure out how you express yourself on the handpan, and doing so before you start absorbing any deeper influences beyond simple percussive techniques from other players. Maybe you're expressing yourself musically for the first time, if this is truly your first instrument, so dig into your own voice!

Listening to music is one thing, but being instructed is another. That said, it's not the end of the world if you begin with lessons and that doesn't in any way mean that you can't or won't find your own voice and style! This is just a friendly suggestion to take a seemingly unconventional approach to a very unconventional instrument that still doesn't have any rigid educational structure formed around it. Go be a UFO pioneer! Please don't abduct any cows or other humans, though: Turns out they don't like that very much.

# Closing Words

Writing this book has been a very long and arduous process and I think it would've taken half the time if I had the knowledge I have now about what processes I chose to create it that were entirely unnecessary (like phone calls versus simple emails for interviews). I'm grateful for the connections made, but wish I had been more lenient and accepted emailing answers earlier on instead of insisting on having a human connection with everyone. Maybe some of the people would've jumped at the chance to simply email me and I'd have even more interviews to share on the website with you all from the get go. Hopefully I can reach back out to those people and have them happily join us soon.

It's really crazy looking back over these last 3 years at all of the friendships formed and deep learning that was had. I've learned so much more than I already knew from my many "nerd sessions" with other handpanists during my first year playing. So much has changed just in the last 3 years since I began interviewing that I have had to come back and edit many pages of this book multiple times to ensure that the most up-to-date information is written. I still feel like I am missing some info in here that could be very useful, but I've forgotten about it due to not writing down notes someplace reminding me to make entire new chapters for it. Something for version 2.0 in another year! The project definitely grew into something much bigger than originally planned and I think I'm finally feeling good about where it ended up as I write this final page.

I hope that if you've gotten this far, you've enjoyed whatever parts of the book that you did and maybe some of the interviews online, that you found both halves of the project interesting, helpful or inspiring, and ideally that you would recommend them as something of useful quality to a fellow handpan fan or aspiring handpanist in your life. Above all, I want this book to be as widely accessible as possible and to be a helpful resource for *anyone* who wishes to learn more about the handpan. I hope it will reach the hands of as many people as possible and that it becomes something at the forefront of everyone's minds when it comes to answering any questions newbies might have and helping to educate others about the handpan. I'm not sure how translating it into all the major languages spoken in our global community will work, but hopefully that will become economically possible in the near future.

Thank you to *everyone* who helped to make this project possible, gave creative suggestions, connected me with handpanists for interviews or did one yourselves, and inspired

me both with your words and motivation to continue with this massive task and to complete the book. I will leave you here with a symbolic “singing-the-ding” cheers or salute. I wish each and every one of you the best of luck in your journeys with this amazing UFO.

-J.W.

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