THE NATURE OF SOUND

MUSIC AND BIODIVERSITY

FRB
FONDATION
POUR LA RECHERCHE
SUR LA BIODIVERSITÉ

cité
de
la musique

THE RICHNESS OF NATURE
AND THE BIODIVERSITY OF MUSIC

Biodiversity constitutes the living tissue of the Planet of which mankind is a part and fully depends on. It encompasses all forms of life on Earth, the relationships between them and their environments since the common origin of life.

Since the Earth Summit convened by the United Nations in Johannesburg in 2002, respect for the diversity of nature and culture is recognised as a prerequisite for sustainable development. The persistence of these two closely related forms of diversity is considered essential to the survival of the human race.

A result of biodiversity, the variety of materials used to make musical instruments represents a valuable testimony, that is all the more precious today, since some of these materials may be in danger of disappearing. The musical and instrumental heritage preserved in the Museum illustrates a sonorous landscape that traverses history and geography.

Via this thematic tour of its collections, in association with the Foundation for Research on Biodiversity, the Music Museum invites visitors to take a new look at the links established between man and nature, through music.

Music Museum- Africa showcase

LA FRB
FOUNDATION FOR RESEARCH ON BIODIVERSITY

The FRB was founded by eight public research organizations : CNRS, IRD, INRA, MNHN, IFREMER, CEMAGREF, BRGM, CIRAD. As a foundation for scientific cooperation, the FRB's mission is to support research on biodiversity at national, European and international levels in close interaction with all stakeholders. Among the core activities of the FRB are to encourage innovation, to develop and support projects and to mobilise expertise in the fields of biology, chemistry, socio-economic and legal sciences. Training, awareness-building and knowledge-dissemination are all integral to these actions.

www.fondationbiodiversite.fr

THE CITÉ DE LA MUSIQUE

The Cite de la musique is a public institution under the aegis of French Ministry of Culture and Communication. It promotes equal access to culture for all, thanks to its various activities : concerts, shows, museum, exhibitions, multimedia library, publications and educational sector. The Music Museum harbours one of the largest collection in the world of musical instruments, works of art and scale models. It covers four centuries of the history of Western music and presents an overview of the main musical cultures throughout the world. An audio itinerary, daily performances by musicians, the seminars, forums and concerts centred on the collections' instruments are integrated among the major themes that punctuate the life of the Cite.

www.citedelamusique.fr

GUIDE TO VISITING THE MUSEUM

This booklet invites you on a guided tour that takes a look at biodiversity in the Music Museum collection.

1 The numbered pictograms on the floor corresponding to the ones in the booklet show you the way.

170 You can also listen to music by pressing the number shown in your booklet on the audioguide.

Enjoy your visit!

Since the dawn of mankind, people have always recognized the rustle and bustle of nature, animal noises and the sound of their own voices, as signals that enable them to find their way and their place in space and time.

Music is inseparable from the very existence of human society and represents a basic human need. Recent studies show traces found on the cave floors, stalactites and limestone rock draperies of the Niaux caves in Ariège that bear witness to the hearing experiences of Cro-Magnon man.

In order to explore the world of sound, people made use of organic matter from animal and vegetal species, which they made resistant to rot and then ingeniously assembled and shaped. The different climates and contours of the natural world offer a vast array of resources that ring or resonate: roots, seeds, treetrunks and treebark, bones, shells, horns, hide, fur, guts, metals, water, stones...

To subsist, people cultivated or collected certain plants and hunted or farmed animals. Waste, rubbish and less important parts were frequently used as raw material for creating sound objects. Musical instruments made from living things therefore provide valuable information about the relationship between different peoples and their environment.

From one material to another, instrument making has succeeded in embracing almost all of nature. - André Schaeffner, ethnomusicologist, *The Origin of Musical Instruments* 1980.

1 *Oliphant* **from an elephant tusk, anon, Africa or Asia, 19th century, E.218**
This instrument is made out of an ivory tusk and makes use of its natural hollow.

Is it not strange that sheeps' guts should hale souls out of men's bodies?
William Shakespeare, *Much ado about nothing*, Act II, scene 3, 1600

Sheep or goat gut was used for bowstrings or hunting or battle. Stretched across stringed instruments, gut strings enable musicians to create an expressive and infinite range of timbres, melodies, rhythms and nuances.

Skin, bones, wood from felled trees or seeds can play a part in the sacred or divine character of music, endowing it with supernatural or magical powers. Music gives rhythm to the cycles of life in society and can be used to communicate with animals, to herd them, or to imitate and attract prey while hunting.

1

Music Museum: Origins showcase

By charming wild beasts and tree spirits or making stones weep, the legendary hero Orpheus embodies the dream of a universal language enabling all beings to communicate with one another. This dream has persisted across the centuries, from the antique mosaic pictured above to Claudio Monteverdi's opera, *Orfeo*.

It is said that a drum covered with sheepskin loses its resonance and completely loses its sound when another drum covered with wolfskin is heard.
René Descartes, *Compendium on Music, 1618*

Some materials used to craft instruments retain the symbolic power that people attribute to the elements of living matter from which they are created. Narratives and legends illustrating the influence of the animals or plants that instruments originate from are found in many cultures.

***Ney*, flute, anon, Iran, 19th century, E.1492**

The theme of the "talking" flute appears in folk tales and mythology. According to legend, King Midas of Phrygia had a servant who whispered his master's shameful secret into a hole furrowed in the sand and surrounded by bulrushes. The flute made from the bulrushes revealed the secret in its song: King Midas has ass's ears!

Thanks to their natural hollows, bones or bamboo can be transformed into wind instruments that resonate when a musician blows into them. The resulting music symbolises life, analogous to the breath of life whose absence signifies death.

1

Vulture bone flute, Aveyron (France) Languedoc regional archeological department reserve collection, circa 2500 BC

This flute, made from a vulture's tibia, is one of the rare instruments we possess dating from this era. Today, in Greece, there exists a religious ceremony to free the *floyera* flute, which is made from the bones of birds of prey, from the harmful symbols associated with these animals.

Today, thanks to standardization, the same materials are almost always used to manufacture each type of instrument: maple and spruce for violins, ebony for clarinets, felt for piano hammers... But what happened in the past? Studying the criteria for choosing materials is a delicate matter, since few instruments from before the 16th century have reached us, and we only know of the existence of others through written documents and pictures. Factors outside technical criteria are sometimes surprising.

SONORITY AND ESTHETICS

> *Usually we choose a beautifully coloured wood that has been well polished, so that beauty accompanies the goodness of the instrument, and that our eyes can in some way participate in the pleasure of the ear.* - Marin Mersenne, *Universal Harmony*, 1637

Music is apprehended by ear and also by eye and some especially finely crafted instruments become works of art. In this case, the work of the instrument maker consists in creating a perfect harmony between the aspect of the instrument and its sonority. Witness this letter from Lorenzo di Pavia, a famous 15th century lutemaker to a noble customer:

> *The said lute(...) will certainly be the most beautiful in the whole of Italy. But it is impossible to create a soundbox entirely in ebony because the lute would be extremely ugly, and worse, it would not resonate at all, it would sound like an instrument made of marble. Thus I made the soundbox from a fine and beautiful cypress wood and then added ebony decorations to the surface.*

Cittern, Girolamo Virchi, Brescia, end of 16th century, D.MR.R.434

The head of the instrument, which has little effect on the sound, often displays exquisite artwork. Here the neck and carved head are made of curly maplewood, embellished with polychrome.

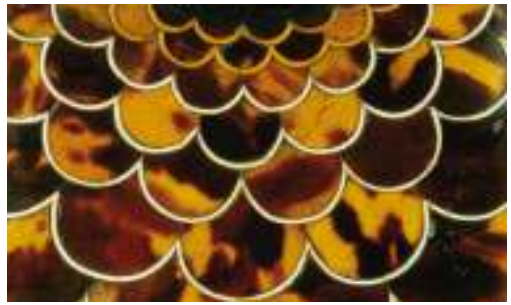
2

In the 17th century, maritime trade brought wealth from the Orient and the New World to the great Dutch, Spanish, Portuguese and English ports, imported in great convoys from Asia and the Americas. Instrument makers jumped at the opportunity to satisfy their rich customers for whom fine materials were synonymous with the rare and exotic, and also in part to compensate for the depletion of natural local resources.

170 Archlute, Christophe Koch, Venice, 1654, E.546

Made entirely of kingwood a shrub that grows in Brazil, this archlute is decorated with motifs of foliage and tracery. This lute is made by temporarily gluing together two sheets of veneer, one of elephant ivory and the other of kingwood, on a decor that has been printed or traced on paper. The pattern is then cut out to obtain two sets of marquetry, one, ivory on a kingwood background, the other, kingwood on an ivory background. The Berlin Musikinstrumenten Museum owns its counterpart, made from the twin decor of the Parisian instrument.

3



4

Guitar, Jean Voboam, Paris, 1693, E.28

The instrument maker Jean Voboam certainly did not choose the scaly seaturtle for the quality of its sound but for its beauty, and in reference to an antique lyre made from tortoiseshell, according to legend. Today, this turtle, the most hunted for centuries, is in danger of extinction.

Overexploitation of European forests and the traffic of African slaves in return for gold, silver and all kinds of produce, brought communities of craftsmen into contact with an abundance of materials and novelties. This powerful current of trade allowed instrument makers to observe foreign expertise and invent new techniques to refine, curve, fold, use and create sound from a huge variety of wood species. Thanks to their ingenuity and adaptability, instrument makers perfected their tools to make the most of the materials available, from every origin.

EXOTIC MATERIALS AND LOCAL WOODS

Vihuela de mano, anon, Spain, end of 16th century, E.0748

This rare *vihuela de mano*, a direct ancestor of the guitar, links problems faced by instrument makers in the 16th century to those of today, and is a good example of the close relationship between manufacture and the long-term management of biodiversity. Traces of use on this rather plain instrument show it to be one of the few examples of instruments used by musicians in the 16th century to have survived. To make the back and wood strips [1] the craftsman chose jujube wood from a small tree that was very common in the Mediterranean region, grown for its plum-like fruit. According to Greek mythology, the wine made from this fruit led to amnesia.

Today, finding jujube wood to create a facsimile of the *vihuela* is a challenge for the Music Museum. Jujube fruit is no longer served as a sign of hospitality, and it has become a rare plant found mainly in the wild. Its small size and the lack of cultivation make it difficult to use this wood to manufacture instruments.

5

[1] **wood strip**: thin strips of wood that attach the sounding board to the back of the instrument, to form the sides of the soundbox.

THE ART OF SUBSTITUTION

Historic or economic circumstances can lead instrument makers to seek new types of wood instead of their usual species, without making any real alteration to the instruments.

Some hardwoods are regularly substituted for ebony. Thus, swamp oak is a common wood species that grows in peat or swampy wetlands, where it turns black and acquires a very hard texture. Often used on harpsichord keyboards by the Antwerp School (in the 16th and 17th century), swamp oak may also have been used by the lutemaker Antonio Stradivari to make the fretboard [2] of the guitar displayed in the Music Museum.

Flemish virginal, Hans Ruckers I, Antwerp, 1583, E.986.1.2. (below left)
Guitar, attributed to Antonio Stradivari, Cremona, 1711, E.904 (below right)

6

THE ART OF RECYCLING

Today, dendrochronological study [3] clearly reveals that recycling was practised regularly throughout the history of instrument manufacture.

In London, in 1810, Thomas Dodd, the well known lutemaker, created a violin with a soundboard [4] that came from the Lapé Forest, famous for providing the wood for barrels used to transport gruyère cheese. In Paris, in 1850, the famed Jean-Baptiste Vuillaume completed a violin with a soundboard that dated from before 1739, and very probably came from a piece of furniture made of wood from the same region.

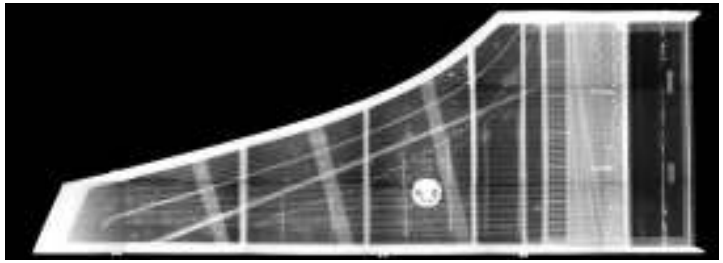
[2] **fretboard:** small strip of wood fixed to the neck of the instrument, which the musician presses to determine the vibrating length of the string. [3] **dendrochronology or tree-ring dating**: the scientific method of dating based on the analysis of patterns of the formation of tree rings. [4] **soundboard:** upper part of the soundbox across which the strings are stretched. As the soundboard vibrates it amplifies the vibration of the strings.

From the 16th to 18th century, the harpsichord was one of the instruments that symbolised music played at court and by wealthy amateur musicians. Combining esthetics and technique, harpsichord manufacture assembles a sample of biodiversity, in a balanced structure, with each representative carefully chosen for its specific properties.

7

380 **Harpsichord, Ioannes Couchet, Antwerp, 1652, E.2003.6.1**

The sound radiates from the soundboard, which is flexible yet robust, made from a very thin panel of coniferous wood: cypress for the Italian School and spruce for the Flemish and French Schools. The strings are mounted on a bridge [1] that is glued to the soundboard; made of hard wood such as maple or beech, it supports a total string tension of 700kg for the instrument.



X-ray of the Ioannes Couchet harpsichord

The inner side of the soundboard is reinforced with internal bracing made from coniferous wood. The type of wood selected and also the way it is cut ('quartersawn') make it extremely rigid. The soundbox is made from light rigid wood like cypress, linden, poplar or walnut to withstand the tension of the strings. The wrest plank, in which the tuning pins are embedded, is made from a slab of hard wood such as oak.

[1] the bridge is glued to the soundboard; the strings pass over it and when plucked, their vibrations are transmitted to the soundboard.

The keyboard is composed of keys made of linden wood, the black keys are covered in swamp oak or ebony and the white keys, in bone or ivory, while the key fronts are veneered with pear or boxwood. When the musician's finger presses a key, it sets in motion a jack, whose mechanism is a technological feat.

Harpsichord, Giovanni Antoni Baffo, Venice, 1573, E.951 (above left)
Harpsichord, Faby, Bologna, 1677, E.224 (above right)

Harpsichord, Nicolas Dumont, Paris, 1697, restored by Pascal-Joseph Taskin, Paris, 1789, E.774

The body of the jack is made from pearwood, which combines lightness and polish. It slides in a leather window called the register that holds it in place, and is equipped with a plectrum (or quill) to pluck the strings. The quill is the pointed end of a crow or turkey feather; just a few millimetres long, its elasticity is precisely regulated by being cut at an angle and impregnated with a lubricant made of oxfoot oil.

Mounted on a pivoting tongue to ensure flexible, virtuoso playing, the plectrum is maintained under the string between each note by strings made of boar bristle that is sometimes replaced by a metal wire today. The harpsichord demonstrates how far instrument manufacture is dependant on biodiversity.

Both a musical instrument and a work of art, the harpsichord was often decorated with paintings that imitated different aspects of the natural world. While the lids and the case are decorated with landscapes and *trompe l'oeil*, the soundboard is painted with swarms of insects, birds and flowers. Natural decors of tulips, irises, carnations, strawberries and cherries, reflect the 19th century passion for botany, encouraged by development of scientific instruments such as the microscope. Cataloging natural history in this way inspired collections and cabinets of curiosities.

Harpsichord detail, Ioannes Couchet, Antwerp, 1652, E.2003.6.1

8

383 **Harpsichord, Andreas Ruckers II, Antwerp, 1646, rebuilt** [1] **by Pascal-Joseph Taskin, Paris, 1780, E.979.2.1**

The tulip, from Central Asia, sparked a veritable passion in mid 18th century Europe, launching in Holland a period of frenzied speculation, called 'tulipomania', where bulbs were bought and sold at skyhigh prices. Depicted on Andreas Ruckers' Flemish harpsichord, which dates from this period, this flower represents both a symbol of luxury and the vanity of men.

[1] **rebuilding** : in the 18th century, harpsichords were frequently transformed by enlarging the keyboard to adapt to the musical taste and repertoire of the era.

This timeless miniature world of buds and blossoming flowers reveals an interest in science and yet is also a reflection of the garden of the world, in praise of The Creation. At the same time, it also evokes the senses and human fragility. While the still life flowers suggest mild sweetness, as in literature, it is through poetry that the link between this symbolic image and music can be understood. From hymns to the Virgin to romantic *lieder* [2], songs compare paradise to an earthly garden, the New Eve to a rose.

The relationship of birds to music is more direct. Some music composed for harpsichord by Rameau or Couperin makes direct reference to birds: *Le rappel des Oiseaux, Le rossignol en amour*. Whether they are intended to be descriptive or allusive, these compositions recreate the song of nature through instrumental music. And surely the bird depicted on the soundboard represents the life that the musical vibrations bring back to the wood?

Harpsichord, detail, Antoine Vater, Paris, 1732, E.2008.2.1

Ioannes Couchet harpsichord, detail

[2] The lied is a German poem arranged for solo singer, usually accompanied by the piano.

Instruments are usually coated with varnish for protection and decoration. To make varnish, lutemakers used different oils (linseed, walnut) and resins (from conifers) produced in Europe, and also substances imported from distant lands: *Gum Mastic resin* from the Greek island of Chios, *Dragon's Blood* from Yemen or the Canaries, *aloe vera* plant from Cap-Vert, *copals* from Africa or South America, *benzoin* from Sumatra...

260 **Reproduction of a bass viol by Michel Collichon**
Bass viol, Michel Collichon, Paris, 1683, E.980.2.667

Secreted by insects (including the *Kerria lacca Kerr*) that parasite many species of trees, shellac [1] resin has been used in India for centuries. While its colouring principle was used by European artists from the Middle Ages, the earliest traces of use of the resin it contains for varnish, by lutemakers, date from the end of the16th century.

9

570 **The "Davidoff" violin**
Antonio Stradivari, Cremona, 1708, E.1111

To give this violin its intense colour, Stradivari incorporated several red pigments into the varnish, including crimson lake. The bright red colour is obtained from carminic acid, a molecule synthetised by the Mexican cochineal insect, the only parasite of the Barbary fig tree (or prickly pear). Originally used by the Aztecs to produce a stronger and more vivid red dye than any other, cochineal was one of the products that brought wealth to Spain. Its animal origin only became generally known at the end of the 17th century when microscopes became more advanced.

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[1] Shellac was used as a substitute for Chinese and Japanese lacquers (produced by the *Rhus verniciflua* Stokes lacquer tree) to imitate the "Chinese varnish" in Europe.

Another red dye, pernambuco or brazilwood, is named after its country of origin, Brazil. Used by the Amerindians well before the arrival of the Conquistadors, this tree was imported to Europe from the 16th century for its tinctorial properties [2]. But it was for its mechanical and acoustic qualities that pernambuco wood became indispensable for manufacturing bows in the 18th century. During this boom period for instrumental music, as the violin emerged as a solo instrument, French bow makers responded to the new virtuoso demands by radically transforming bow manufacture. Dimension, weight, camber and proportions were completely reviewed and the supremacy of brazilwood was established and continues today.

Cello bow, anon, France, circa 1770, E.980.2.219
bowstick made from Brazilwood

In 2007, the increasing scarcity of the brazilwood tree, due to overexploitation of the Atlantic Forest of Brazil led to it being inscribed by the Convention on International Trade on the list of endangered Species of Fauna and Flora (C.I.T.E.S.), which strictly regulates its supply.

Viola bow, anon, England, circa. 1720-1750, E.980.2.173
bowstick made from snakewood

The oldest known bow is an 11th century viking bow, made of dogwood. Over the centuries, notably in the 18th century, many different types of wood were used, both local species like beech or maple and South American species like snakewood or *bois d'abeille.*

11

[2] A tinctorial plant is a plant from which parts can be used for dyeing and staining.

The 19th century was a period of rich experimentation and saw the appearance of numerous patents and prototypes for musical instruments, while rapid progress in chemistry provided new materials. Thanks to the Industrial Revolution, European workshops and manufacturers joined the race to rationalize tasks in the workplace. Choice of materials began to adapt to series.

65 Bisonoric accordion in G, anon, Paris, circa 1860, E.995.29.31

The accordion, which was invented in 1829, is a salon instrument, decorated with mother-of-pearl. At the time, abalone, a marine mollusc that produces mother-of-pearl, was imported in great quantities. Overexploitation led to scarcity and today several countries have applied protective measures and made harvesting illegal. In the 19th century, real mother-of-pearl was replaced by synthetic substitutes made from mixtures of skin glue and stone dust, and then cellulose nitrate, the earliest form of plastic.

12

13

Technical progress led to the spectacular development of the brass family, which includes all wind instruments whose sound is produced by vibration of the lips on the mouthpiece. Usually made of brass, an alloy of copper and zinc, some brass instruments are made of wood, like this trumpet made of beech, while some woodwind instruments are made of brass, like the saxophone.

Bass tuba in B flat, Maria Wolf, Frauenfeld, end of 19th century, E.2008.5.2 (right)
Trumpet, Victor-Charles Mahillon, Brussels, end of 19th century, E.703 (left)

The search for increased productivity continued in the 20th century, and did not overlook instrument manufacture. According to the range of products envisaged, from study to solo instruments, the choice of wood, glue, varnish and other materials was made according to criteria of quality and constraints of profitability.

Materials derived from living organisms are complex and subject to change, and it is difficult for them to conform to this logic. Little by little, the abundance observed in the use of biodiverse ressources narrowed in favour of standardisation focussing on new chemical materials. However, this sometimes proves a costly choice: the cables, the synthetic composites can be found to be chemically unstable and deteriorate rapidly, compromising conservation and more importantly, the playing of the instruments.

747 Electric violin, Max Matthews, Bell Laboratory, United States, 1985, E.992.14.1

Built by Max Matthews, an electronic engineer, this electric violin that supposedly reproduces the secrets of the violin timbres, is essentially mineral, from its aluminium soundbox to its ceramic amplifiers. The fingerboard and neck of the instrument, which are in direct contact with the musician's skin, are made from ebony and sycamore maple and maintain a physical connection with biodiversity.

14

15

Electric guitar "type 335" Gibson, 1966-1967, E.2000.4.5

While this guitar still seems to be in satisfactory condition, a closer look reveals that some composites have begun to deteriorate, a process that is clearly visible in other guitars dating from the same period.

Industrial reproduction exists parallel to ancestral expertise, which is still in use and guarantees diversity in the world of instruments. While families of strings, woodwind and percussion are found all over the globe, different cultures and natural environments make instrument crafting an experimental field. Soundboxes made of coconut or carbon fibre, percussion using goatskin or polyester film, or flutes from bone or polycarbonate... will the dangers that threaten biodiversity today limit this wonderful mix of natural and synthetic materials?

A spectacular variety of species are used in the chordophone family. In Europe, gut strings from Naples, made from sheep sacrificed for Easter, were most common until the 19th century, while in the Far East, instruments were strung with braided and twisted strands of silk. In Africa, the enormous variety of materials included vegetal raffia from palm or tree fern fibres, animal strings made from elephant or giraffe hair, guts, or twisted leather from mammals or reptiles.

Saung-gauk **bow harp, anon, early 20th century, E.998.19.1 (left)** This harp has strings of twisted silk.

844 *Beganna* **lyre, anon, Ethiopia, 20th century, E.969.7.2 (right)** This lyre has gut strings.

16

Nowadays, strings made of metal or synthetic materials like nylon, which are stronger and resistant to rot, are often used instead of traditional strings. The latest discovery in Africa, twisted magnetic tape from audiocassettes, ingeniously used to string African harps, seems to be a resounding success.

When an instrument or culture starts to spread, and when musicians or groups of people travel, they take their favourite instruments and music with them. Thanks to new local customs and resources, the instrument gets adapted and the original musical repertoire is often radically changed. As a result of travel, whether freely undertaken or enforced, many musical expressions originate in another country or culture.

The marimba is a traditional South American instrument, descendant of the African xylophone brought over by African slaves and adapted to their new surroundings. Both have mirliton reed pipes fixed on the resonators to give them a buzzing sound. In Africa, they were traditionally made from spider cocoon membrane and nowadays from cigarette paper, while in South America, mirlotons are made from pig bladder.

840 *Bala* **xylophone, anon, Senegal, 19th century, E.386 (left)**

870 *Marimba* **xylophone, Reynaldo Gutierres, Veracruz, 1950, E.998.10.1 (right)**

17

18

The *sanxian* is a long-necked lute first seen in China two centuries before our era (circa 200 B.C.) that was introduced to Japan in the mid 16th century, where it became the *shamisen* lute. However, while the soundboard of the Chinese instrument is made of reptile skin, the Japanese version opted for cat or dogskin.

Sanxian **lute, anon, China, 19th century, E.559 (right)**
Shamisen **lute, anon, Japan, early 19th century, E.1658 (left)**

19

The calabash comes from the cucurbitaceous or gourd family. Found on all continents, gourds play an important role in instrument making. Once it has been hollowed out, dried and cut up, a gourd can be used as a soundbox for many different instruments.

855 *Bin (rudra-vina)* **tubular zither, anon, Bikaner, India, end of 17th century?, E.997.24.1**

The tubular zither, an emblematic Indian instrument, exploits the gourd plants' natural qualities extraordinarily well. The shape, outline and size of each hollow are carefully selected by lutemakers. And today, these plants are still specially cultivated to meet the esthetic and musical requirements of the instrument.

20

Small lute, anon, France, E.1152

French manufacture of this small lute, dating from the end of the 18th century, goes back to the use of colocynth gourds in southern France, like the cougourdon marrow in Nice today.

Kotze **flute, anon, China, 19th century (?), E.01474**

Made from a small calabash, this Chinese whistle is attached to a bird's feathers so it whistles when it flies.

19

In many cultures, music presides over the social organization and ritual practices on which their identity is founded. When the ecosystem in which societies are immersed is disturbed – by deforestation, sedentary lifestyle or extinction of animal and plant species – the equilibrium of the entire community is endangered. Instruments that are traditionally crafted with local materials run the risk of disappearing, taking with them swathes of musical heritage that are, for the most part, orally transmitted.

Dunde **stick zither, anon, Celebes Islands, 20th century, E.2002.8.2**

This extremely rare instrument, the *dunde* stick zither, has virtually disappeared from India where it originated. However, it is still played today in some rural communities in South-East Asia and Indonesia, evidence of the important cultural influence of India via the spread of Buddhism.

21

Morin khuur **horsehead fiddle, anon, Mongolia, late 19th /early 20th century, E.2009.2.1**

Played for nearly seven centuries, and taught via oral transmission, the *morin khuur* Mongolian horsehead fiddle is closely linked with important role of horses in this society, and used to tame the animals, as illustrated by the sculpted head, horsehair strings and bow. This extremely popular instrument, icon of national identity, is inscribed on the Unesco list to safeguard Intangible Cultural Heritage.

19

Music is a marvellous illustration of the intimate bonds between man and nature. Created from physical matter, inspired by dreams, transporting symbols, musical instruments are smugglers, cutting across the frontier between nature and culture.

Biodiversity is not a passive medium of production. Abundant and alive, biodiversity is a source of inspiration to man, transporting his history, and imposing its potential and its limitations. And in response, mankind adapts to biodiversity and develops techniques and expertise. The biological diversity of peoples' environments offers a world of possibilities to their creative genius.

Biological and cultural diversity are interdependent. Protection of the rich variety of human cultures around the globe is indissociable from preservation of biodiversity. Standardization of our living environment, linked to loss of biodiversity, is counterpart to a certain cultural standardization.

To protect this diversity, many initiatives are being undertaken at both local and global levels. Countries are working to revive their customs, traditional music schools are being created, expatriate communities are sharing their culture, and UNESCO has launched the Convention for the safeguard of Intangible Cultural Heritage... There is similar movement concerning biodiversity, which is now considered as world heritage.

In response to the notion of heritage is the notion of evolution. Music is the fruit of a dynamic relationship, the process of co-evolution between man and nature, as are the diverse landscapes and multiple uses of flora and fauna. From the vast range of living matter, man, like all biological species, finds the way to adapt in an everchanging world. Biological diversity, whose incredible forms and properties we have barely begun to explore, is still a potential source of great creativity today.

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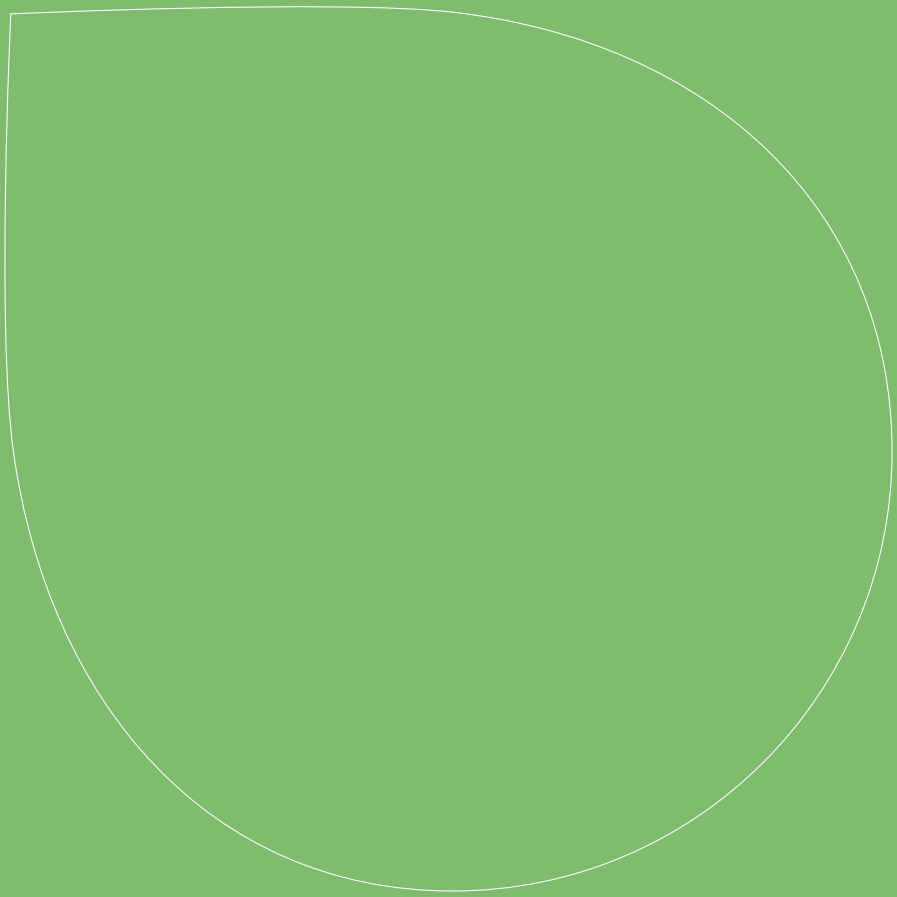
Cover: guinbri lute, anon, Algeria, 19th century, E.2274

E.S. : 757541, 757542, 757543



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