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An Insight on Philippine Digital Humanities Legacy and Research in the Realm of Literature of the Voice and Music

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***An Insight on Philippine Digital Humanities
Legacy and Research in the Realm of Literature of the Voice and Music***

Maceda 100 Symposium

College of Music, University of the Philippines
Quezon City, September 26, 2017

Nicole REVEL

Thanks to a very peculiar sensitivity, an exceptional talent as a composer and as a thinker, thanks to a deeply lived experience, Dr. José Maceda is celebrated all along this year. Although as a child, an adolescent and an adult he was molded by Western classical and modern Music first in the Philippines, then in France and later on in the United States, he opened a new world of Music expression and composition.

As he returned to his homeland he contemplated and projected in sounds the intertwined beauty of tropical nature, the knowledge, wisdom, know-how and aesthetics of the many minorities cultures not only from the Philippines, but also from various regions in Southeast Asia: Thailand, Laos, Cambodia, Myanmar and Yunnan, as well as from ancient courts music of China, Korea, Japan, Indonesia and farther other music from Africa and Brazil.

He lifted boundaries among cultures and disciplines. He foresaw the expanding scale of relationships and networking we are the witnesses of today and imagined music compositions on a parallel conceptual level more than 40 years ago (*Cassette 100*, 1971; *Ugnayan*, 1974).

He was following the constant development of analytical theories and incipient multimedia technologies (recording, collecting, safeguarding) and projected these new concepts to music and safeguarded many forms of oral tradition. Along his numerous field- works and constant discoveries living with the cultural minorities he experienced musical pleasure unheard of in the West and they became a source of inspiration. Today ethno-musicologists, composers, linguists and anthropologists present in this symposium dedicated to his memory are following the way he opened for us.

In order to give an insight on the evolution of the architectures that progressively emerged since the beginning of the 20 c. in the field of conservation and the implicit ethics of the online diffusion, we propose to briefly present some trends in organizing and saving the memory of such ephemeral artistic expressions, the various data and metadata, two in the Philippines, and three in Europe, we have been and still are contributing to, namely:

- *José Maceda Collection at the UP Center for Ethno-musicology*, part of *Memory of the World* at Unesco, the web server monitored by the University of the Philippines (UP).

Charles Macdonald and Nicole Revel-Macdonald deposited their recordings and books in the 70ties and 80ties: <<http://upethnom.com>>

- *Les Archives CNRS - Musée de l'Homme*: an audio database in ethnomusicology where a major part of the recordings we did in music (1970-1990) are also deposited.

Since 2014, the new Telemeta platform <<http://archives.crem-cnrs.fr>> follows the *Europeana Sounds* model of the British Library: <<http://www.europeanasounds.eu>>, a consortium of European digital libraries: <<http://sounds.bl.uk>>

- *The Philippine Epics and Ballads Archive*, housed at the Pardo de Tavera Collection as well as the website we conceived and built from 1991 to 2017, launched in January 2011 monitored by the Rizal Library, on the campus of Ateneo de Manila University: <http://epics.ateneo.edu/epics>

- *La Bibliothèque nationale de France* (BnF): where the epics and ballads of 69 singers of tales from the national communities of the Philippines we collected in collaboration with 29 scholars and knowledgeable persons (recorded and video-recorded, transcribed, translated and analyzed), have been also deposited to be safeguarded by successive transfers since 1995: <http://data.bnf.fr>

Thanks to this multimedia technology, I will refer to two research programs, I contributed to and two others conducted in our unit at Musée de l'Homme:

LEXICO 3: Textometric Analytical Method: <http://www.lexi-co.com>

NATIV: New Trans & Interdisciplinary Approach of the Voice

[http://www.iremus.cnrs.fr /fr/projets-de-recherche/nativ](http://www.iremus.cnrs.fr/fr/projets-de-recherche/nativ)

DIADEMS: Description, Indexation, Accès aux Documents Ethnomusicologiques et Sonores (2013-2015) :

Seven institutions(CNRS, LAM, IRIT,LABRI, LIMSI, MNHN-CNRS) and pluridisciplinarity bringing together the collections of CREM on Telemeta, ethnomusicologists, linguists and acousticians & Société Parisson.

The sound recorded can be visualized as a wave or a spectrogram. An indexation brings out the salient features of the sound and mark them on the recording made by the respective scholars. Interesting segments are automatically extracted thanks to temporal analysis of the sound signal ; successive analysis then follow to bring out the structuration of the recording, a description of its organisation.

GeAcMus : Gesture-Acoustics-Music_of Sorbonne-Universités (2015-2017):

A Program on the use of modern technologies to capture, then to analyze the interaction musician-instrument in 3D, thanks to a biomechanic approach and the collaboration of Université de Technologie of Compiègne (*Cahiers d'Ethnomusicologie*, 30/2017 : www.adem.ch/ce30 [for multimedia datas])

Finally We will be presented briefly our new published multimedia work:

Pala'wan Highlanders Verbal Art. A Living Memory in Southeast Asia

Geuthner, (Pal/Fr/Engl), 320p. 10 DVD Roms compressed in 5 (4, 70 GO).

Preamble

Music and Literature of the voice are an Intangible Heritage need to be both protected and made available. I have formulated 30 years ago the phrase *literature of the voice* to designate artistic expressions by way of long sung narratives, namely epics and ballads without a written support.

Technology however, was starting and keeps on developing at an ever increasing pace, forcing us to continuously adjust to new tools and programs in order to improve our methods of safeguarding, presenting and analyzing the compositions of the cultures with a long lasting oral tradition.

As we worked on collecting and safeguarding Epics and ballads in the Philippines we kept on following the development of Multimedia Technologies and we were able to set in motion new analytical methods.

This endeavor is relevant y to Documentary Linguistics and Digital Humanities.

In this country, the quality of the database has been ensured since the inception of the Unesco Program on Epics (1991-2012) by setting in motion and coordinating a complex complementary and necessary set of disciplines in the field and later in Paris, namely: linguistics (phonology, semantics, ethno-poetics, pragmatics, textometric analysis), ethno-musicology and acoustics, ethnology of course and beyond cognitive anthropology. This becomes a new discipline and is the very core of **Documentary Linguistics**, a trans-discipline.

Nowadays and since several decades already, we are able to capture the fusion of intangible artistic expressions through various lenses including those of interactive media inventors, computer engineers, museum curators, librarians, in order to build multimedia archives accessible on the Web.

In today global world, information is to be treated as a network of information via the inter-connection by **the Link Data**. We do have to adjust to new trends of structuring catalogs in libraries, following international codes.

This new era of Digital Humanities (DH) transforming relationship to knowledge, are emerging as archives of songs, texts, photos and videos of the performances are becoming a reality on the cyberspace, detached from the physical space, but related to it.

A new Memory develops and offers itself to our conceptual exploration, creativity and appropriation. The conception of a design, revealing interactivity between the various components, is then required.

- Illustration by the epic *Māmiminbin* analyzed with the program elaborated by André Salem, **Lexico 3**. <http://www.lexi-co.com/>

- Illustration on the Spectral Analysis of the Timbre of Voice of a Pala'wan singer of tales

NATIV:New Trans & Interdisciplinary Approach of the Voice
<<http://www.iremus.cnrs.fr/fr/projets-de-recherche/nativ>>

Let us start by safeguarding the memory and archiving Intangible Heritage of instrumental and vocal music, I will present briefly four examples of archives related to the Philippines.

1- UP Center for Ethnomusicology
Jose Maceda's Collection, University of the Philippines,
<http://upethnom.com>

Since 2007, this collection - a unique archive in scope and size for the region - is registered in Unesco within the program: *'Memory of the World'*.

Gathered in the field from 1953 to 2001, this collection, reflects the traditional music and numerous styles namely, ethnic music, village music, court music among the cultural groups in the archipelago, but also in various countries of SEA (Malaysia, Indonesia, Myanmar, Thailand, Vietnam and China).

It consists of 2.500 hours of field recordings in 68 languages completed with musical instruments, black and white as well as color photographs, texts and translations, music transcriptions and field notes. Only few videos are part of this collection.

As of now, only the catalogs and metadata are uploaded.

However, not any content is uploaded, save for selected low quality images.

The collective decision in the UP College of Music is one of consultation *in situ*, but it does not respond to a policy of wide diffusion nor the new trends of collaborative research.

The link to this collection which has already been digitized is:

<http://upethnom.com/jmcollection/index.php/items/advancedsearch>

In relation to the [Pala'wan ethno-linguistic group](#) we worked on since 1970:

We have deposited in the archives from 1970 up to 1978 a copy and sometimes the originals of our own collection (Macdonald C. and/or Revel-Macdonald N.) and contributed the collection that Dr. Maceda made when he came to the Highlands and Punang area to do field research with us in 1972 and 1976.

On Pala'wan ethno-linguistic group it represents a collection of:

- 500 audio-recordings on 21p.listing.
- 216 photographs on 11p.listing.
- 13 instruments.
- 16 field notes.

ILLUSTRATIONS ON PPT

2- CNRS-Musée de l'Homme Archives:
an Audio Database in Ethnomusicology <<http://archives.crem-cnrs.fr>>

Historical Background:

In the 1930ties, it was meant to collect, organize and archive published and unpublished audio recordings since the 1900's up to today, by scholars attached to government-sponsored institutions.

- In 1932, André Schaeffner, French historian and musicologist, created la *Phonothèque*, a sound library, Department of Musical Ethnology at the Ethnography Museum of the Trocadéro, in Paris (A book on this historical period will be published soon in Paris)

- In 1937, the Ethnography Museum turned into the newly build *Musée de l'Homme*.

- The next big ethnographic expedition crossed the central part of the African continent, and brought musical archives recorded by Gilbert Rouget (Gérard, 2012).

The Publication of edited 78rpm recordsⁱ started "*Musée de l'Homme*" collection later renamed the *CNRS - Musée de l'Homme* archives, from 1988 to 2001, **37 CDs** were published under the label "*CNRS - le Chant du Monde*".

- In 1968, the Department became the *Laboratory of Ethnomusicology of CNRS*, which 40 years later moved with a part of its associated audio archives to the Université de Paris X - Nanterre (now Université de Paris-Ouest Nanterre), where it was renamed *Centre de recherche en Ethnomusicologie* (*CREM*).

- In 1995, The collection of Epics started to be digitized in 1995 by CNRS Audio-visual department

- In 1999, Digitization starts at CREM.

- In 2009, the audiotapes were progressively transferred to the *National Library of France*

(*BnF*) and they continue to be digitized.

- Since 2011, the sound archives of this institution, one of the largest in Europe, are available through a Web-based platform, a model for audio recordings online collaborative database,

one among the few providing online access to the audio documents as well as detailed metadata.

48.000 audio items from **5.800 collections** of the Research Center for Ethnomusicology (*CREM*), attached to the National Center for Scientific Research (*CNRS*) are catalogued on line.

In the ecosystem of the Web It is a collaborative computer platform for the production of knowledge and its dissemination.

- As of September 2017, **more than 40.300 sound files** have been uploaded, among which about **24.000** are open to the public access free, with a registration and a password;

CREM, has adopted the *Europeana Sounds* model: <http://www.europeanasounds.eu>

(Coordination: Richard Ranft, Dept. of Sound and Image at the British Library, <<http://sounds.bl.uk>> a project of the European Commission and a consortium of digital libraries:

24 partners in 12 countries, the "*Jukebox of Europe*" 2.200 libraries museums archives and audiovisual European collections **1 Million sound recordings**, and more than **30 Millions, books, films and archives** are accessible and data interface **in 29 languages**) which aims to provide access to Europe's sound and musical Heritage ranging from classical and folk music to environmental sounds of the natural world, as well as oral stories.

These collections reflect the numerous cultures, histories, languages and creativity of the peoples of Europe over the past 130 years (classical, contemporary and traditional music, varieties, tales and narratives from oral tradition, soundscapes, languages and inquiries conducted in the field by anthropologists and social scientists, together with 130.000 scores and thousands of images will contextualize these sounds.

Online availability through the scientifically managed non-profit database of the *CNRS - Musée de l'Homme* sound archives is a form of return to communities of their own cultural heritage.

This database has been adapted both:
to enhance archive-based research and
to make music available to a broader audience.

Organizing the digitalized archives into a standardized database fulfill a request from the French Ministry of Culture and the CNRS, (attached to the French Ministry of Research and Higher Education). These institutions provided financial assistance under the condition that they be made available to the public the recordings. They work together with Europeana sound that for the last 3 years provided the financial support for the digitization of the audio documents and related research projects.

All these institutions have had to embrace the **concept of open sharing, in a non-commercial environment**.

The concerns linked to such audio files shaped the method implemented to process the sounds and the contextual metadata. In this respect, Archives in ethnomusicology with the musical artifacts of many populations and their respective cultural heritage as well as the ethical management and the communities' access to their own Intangible Music Heritage are a fundamental issue.

Intellectual property rights and the implicit ethics of the online diffusion of music archives are taken into consideration.

The online distribution of digital archives is framed by a variety of ethical standards, namely:

- **the legal terms of intellectual property rights** and related rights but also
- **a more abstract sense of moral sensibilities** brought by individual researchers and others depositing music.
- The archive is offering its own sense of free access, in a way that refers to a different set of priorities and needs.

Regarding collaborative research, the *CNRS-Musée de l'Homme* sound archives are embedded into an interactive platform system that allows the implementation of a collaborative database.

However It is not wide open to outside contributions, only individually authorized people can edit the metadata contents. These are researchers, archivists and people with specified knowledge.

(See. Simonot & S.Khoury, *Applications and Implications of Digital Audio Database for the Field of Ethnomusicology, a Discussion on the CNRS-Musée de l'Homme Sound Archives*, ANR12-CORD-0022)

Joséphine Simonnot "The CNRS Musée de l'Homme Sound Archives from 1900 to the Present: a Long Way between Heritage, knowledge and Technologies." *DIADEMS*, ANR-12-CORD-0022. pp. 103-116.¹

http://archives.crem-cnrs.fr/archives/corpus/CNRSMH_Editions_001

TELEMETA : a Philosophy of Sharing Knowledge

- is a new open source software platform which facilitates the management and indexing sound files in the audio base.
- It is also a collaborative web audio platform with a on line server and a streaming of a part of the sound recordings in this data base.
- (J. Simonot " Telemeta", *Le document sonore*, 12 Janvier 2012).

La plateforme collaborative [Telemeta](#) vise à rendre ces archives accessibles aux chercheurs et, dans la mesure du possible, au public, dans le respect des droits intellectuels et moraux des musiciens et des collecteurs. Mise au point grâce au soutien du programme du Très Grand Equipement Adonis du [CNRS](#) (INSHS), elle permet aux chercheurs d'échanger les données en ligne, notamment au moyen d'outils collaboratifs comme des marqueurs temporels pour l'annotation du document sonore, des espaces de commentaires, etc...

La plateforme Telemeta a été mise en ligne en mai 2012. Sa gestion est assurée par le LAM. Les différentes campagnes de numérisation du fonds existant permettront, successivement, l'enrichissement de son contenu.

This platform architecture organizes, catalogues & displays these archives on a Web monitored by LAM < <http://www.lam.jussieu.fr>>

It is a collaborative platform for digitized sounds with the joint collaboration of:

- Engineers from the CREM,
- The Lute making, Acoustics and Music (LAM),
- Web-developers from the PARISSON Company,

They worked together for 7 years on a [Content Management System \(CMS\)](#), to implement the Telemeta architecture in order to support the audio archives database. It is written in [Python](#) and [Javascript languages](#), it is an [open-source software](#) that allows for the management of large audio databases and the easy indexing of sound files. The sound archives' metadata are structured on a [MySQL database](#), which organizes the catalogue in 4 levels:

- ***Archive Series,***
- ***Corpus,***
- ***Collections,***
- ***Items.***

The sound is available for listening in a compressed format, but also to be visualized via a dynamic audio player using [TimeSide audio analysis](#) and a visualization framework.

This provides a signal processing tool for the display and streaming of audio sound on the Web.

Various graphical representations can be chosen, for instance:

- the waveform
- the spectral analysis (spectrograms logarithmic and analogical)
- the pitch level

These are commonly used to spot speech or music sections and to navigate inside the recording.

Long-term preservation of the archives is on a server backed up on a weekly basis on the [CNRS Great Research Infrastructure for Digital Humanities, TGIR Huma-Num](#).

On line collection on the Philippines

http://archives.crem-cnrs.fr/archives/corpus/CNRSMH_Revel_001/

Philippines, Palawan: mission de 1970- 1972	Enregistrements sonores inédits collectés par Charles Macdonald et Nicole Revel-Macdonald sur la musique vocale et instrumentale des Pala'wan des Hautes-Terres , lors d'une mission aux philippines de 1970-1972	CNRSMH_I_1971_023
Philippines, Ile de Palawan, ethnie Pala'wan: mission 1970- 1972	Enregistrement sonores inédits de première mission ethnographique et linguistique effectuée à Palawan, sous l'égide du CÉDRASEMI (CNRS-EHESS). Enregistrements sur la musique (instrumentale et vocale), les arts de la parole illustrés par quelques exemples de littérature orale (narrée, chantée) et de rhétorique.	CNRSMH_I_1974_006
Philippines, Palawan: 3 pièces de musique de gongs, 1984		CNRSMH_I_1986_013
Philippines, Palawan: Kulilal. 1975-1976	Collection en cours d'identification avec Nicole Revel	CNRSMH_I_2014_040
Philippines, Palawan : musique bägit. 1978	Musique instrumentale imitant les sons de la nature : les oiseaux, les insectes, les animaux, les phénomènes naturels (vents, pluies, vagues, frictions des lianes, génies, feux, eau, air, humanité). Ces enregistrements ont été réalisés par Nicole Revel en 1978 dans les Philippines, dans l'île de Palawan (musique bägit).	CNRSMH_I_2014_041
Philippines, Palawan: musique Bägit. 1983	Musique Bägit pour luth interprété par Lapung et Mandun	CNRSMH_I_2014_049
Philippines, Palawan; 1988	Musique vocale Palawan. A identifier avec le collecteur	CNRSMH_I_2014_050
Philippines, Palawan; 1999	Musique Bägit Palawan et Kulintang enregistrée en 1999	

Collections Kalimantan en ligne sur :

http://archives.crem-cnrs.fr/archives/corpus/CNRSMH_Revel_003/

Musiques de Luzon (populations Kalinga, Bontoc, Negrito, Ifugao) :	Enregistrements sonores inédits de musiques collectés par José Maceda auprès des populations Kalinga, Bontoc,	CNRSMH_I_1977_011
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missions J. Macéda, 1974-1977	Négrito et Ifugao lors de missions de recherche entre 1974 et 1977.	
Indonésie. Revel-Macdonald, Nicole		CNRSMH_I_1978_013
Kalimantan Timur (Bornéo Est) ; Revel, N.	Musiques vocales et instrumentales	CNRSMH_I_2010_006

ILLUSTRATIONS ON PPT

3- The Philippine Epics and Ballads Multimedia Archive <<http://epics.ateneo.edu/epics>>

Over the past 26 years, the Philippine Epics and Ballads Archive has involved initially 69 singers and 11 technical assistants, in addition to many scholars and local knowledgeable persons.

Most of the documents were taped originally in analog form, but with the collaboration of the audio-visual departments of the Bibliothèque nationale de France (BnF), and Ateneo de Manila University, all data (representing about 1,500GB) have now been digitized and preserved on CD-ROMs, DVD-ROMs, and hard disks. As of May 2016, the physical collection itself consists of 7,820 pages, bound in 36 volumes, located at the Pardo de Tavera Collections section of the Rizal Library, Ateneo de Manila University, where a part is kept for strict conservation, while a set of the printed texts and related articles can be consulted *in situ*, by students, scholars and external visitors.

All epics in the database were recorded via audio in their entirety, with portions of them filmed on video during performance. The narratives have then been orthographically transcribed as accurately as possible with respect to the particular phonemic systems of the given vernacular languages involved, and manuscripts were edited and formatted for typographic consistency aimed at generating an ***eCollection***.

These manuscripts were in turn translated into either English or French (and sometimes both) and in some instances into Tagalog as well. Final contributions were then placed into PDF format so as to protect the relevant copyrights held by all contributors: singers, researchers, and technicians alike (See Copyrights front page of the website).

We have sought to reflect the poetics of each song through the layout on the page itself. The question of layout is fundamental, for within the linear constraints of a white page, it must reflect somehow the main poetic features of the sung narrative in the totality of the composition. An ethno-poetic approach is required in order to successfully confront the et ephemeral projection of time upon the physical space of the page: Accordingly, when the meter is short, the translation mirrors the text on the same page; however, when the composition rules are different and demand more space per line, the translation will appear on an adjacent page while still matching the format of the original transcribed song. Such metrical patterns of course vary greatly according to the particular singing tradition, and one must work diligently **to identify by ear** the

relevant features of the song as it was performed and recorded, so that it might **be reconfigured primarily for the eyes** in this new context.

Since January 2011 a special **server** at the Rizal Library is providing free access to most of this multimedia e-Collection of the Archive. The website was elaborated according to my design and with the competent collaboration of several technicians of the Department of Electronics, Computer, and Communications Engineering (School of Science Engineering Management and Information), Ateneo de Manila University.

As of today this website comprises 16 boxes representing part of the oral heritage of 16 linguistic and cultural groups of the collection (15 in the Philippines + 1 in Botel Tobago) , no hierarchy is being intended within the overall design and numbering.

Within each linguistic group's section, a constant arborescence of 8 tabs is present, namely allows easy navigation on the database.

Clicking the MAP tab will show the user the geographical location of the specific group, while the OVERVIEW tab leads to a 5 to 8 minutes video, contextualizing the epic within the given culture.

The ARCHIVE LISTING tab provides a list of the archive's registered epics and ballads for the linguistic group along with further information concerning the performance and collection of each sung narrative. Actual audio recordings along with the transcriptions in the vernacular language and integral translations in English and/or French and/or Tagalog are found under the EPIC tab.

Other tabs provide important complementary materials: under the ARTICLES tab, articles written through the years by the collectors in connection with a given epic or ballad. All texts are in PDF and can be printed by the users.

Clicking on PHOTOS tab, reveals miscellaneous personal collections of related photographs with captions, depicting landscapes, habitats, crafts, performances and rituals.

For most of the epics and ballads, the VIDEOS tab, leads to any videos filmed during the sung performances, while via the OVERALL ARCHIVE tab, a complete archive listing of the epics and ballads collected among 15 linguistic groups is accessible.

ILLUSTRATIONS IN PPT

4- Bibliothèque nationale de France (BnF)

[<http://data.bnf.fr>](http://data.bnf.fr)

Historical development:

1/- At the turn of the XX c.: Files follow the protocol of the Libraries of Berlin and Vienna.

2/- In 1920: According to the new humanistic ideal of the Society of Nations (SDN), **normalization** becomes a must for sharing information.

It is an era of new Utopia : The integrality of knowledge can be put on files.

3/- In the 60ies:

1961: The main principles are decided upon during a Conference in France :
'The Principles of Paris'

1971: with the **International Standard Description (ISBD)** the board files are normalized.

In a parallel way, the Americans make their own cataloging (AAC).

With Machine Readable Catalogue (MARC): Information is being structured so that the computer can understand it.

4/- In the 80ies :

A total shift takes place: Information is proteiform and multi oriented with :
GOOGLE, WIKIPEDIA, ARCHIVES etc.

Extensible Markup Language (XML) provides markers.

The Encoded Archival Description (EAD) is an example :

The principle of EDA : ex : Bali 6 September 1931

- A General presentation of the Collection
- Its history
- Its content
- documents
- Indexation

Ex. : the gamelan¹

If you click on the Catalog of Manuscripts at BNF :

Audiovisual Collection :

Colonial Exhibition in 1931

Comments :

Objects and crafts in the Exhibition, are the first items of the Collections at *Musée Guimet* (on Asian Arts) and *Musée de l'Homme* in ethnography.

Thanks to the financial support of Pathé, recordings are then made :

173 records (78 tours) + 157 photos of the performers.

The sound recordings had then a tremendous impact on composers like Jolivet and poets, like Antonin Artaud². (P. Cordereix : « Sound Recordings of the Musée de lParoles

The « *Philippine Epics and Ballads Archive* », I conceived in 1987 and set in motion during fieldwork from 1970 to 2010, follows a tree structure and is quite close to EAD.

¹ Pascal Cordereix, Curator of Sound Collections, « Les fonds sonores du Département de l'Audiovisuel de La Bibliothèque nationale de France », *Bulletin de l'Institut Pierre Renouvin*, 2014/2, n°40.

P. Cordereix : « Sound Recordings of the Musée de la Parole et du Geste at the Exposition coloniale', between science, propaganda and trade », *Vingtième Siècle Revue d'Histoire*, 2006/4 (n°92), pp. 47-59.)

² See P. Cordereix : « Sound Recordings of the Musée de la Parole et du Geste at the Exposition coloniale', between science, propaganda and trade », *Vingtième Siècle Revue d'Histoire*, 2006/4 (n°92), pp. 47-59.)

5/- Around 2000 :

The new trends structuring the catalog are : to conceptualize and to provide models for data. The new model is : Entities – Relationships.

For ex : an application of Functional Requirement for Bibliography Records (FRBR) is represented by a Graph in order to fit the codes (a set of rules) of the Semantic Web and to be present in the Linked Data, turning data comprehensible to the computers.

This is a way to treat information as a network of informations.

In relation to a specific research, the Link Data is going to interconnect the information and the superposition of levels will facilitate the retrieval of the relevant level.³

SYNTHESIS :

In order to be visible on the WEB, it is necessary:
to be indexable by search engines
to be linked to existing data
to be easily accessible by the user

In this respect the Website < <http://data.bnf.fr> > has received many prizes.
For instance, on this site, one can type Nicole REVEL and the whole set of my deposits becomes accessible.

The audio sound collections at the BnF are at a cross-road.

Today's challenge is to reconcile the traditional missions of the BnF, namely :
enriching the collections, documentary treatment, conservation and communication
with : 1/ the priority of a cultural policy of mass diffusion.

2/ the pressing needs of scientific research on sound recordings.

What is then necessary:

- A strong structural organization of data following international codes based on Resource Description Framework (RDF): a conceptual framework, a graph to describe the resources on the Web and their metadata is the basic grammar of the Semantic Web.
- Link Data will then be possible.
- Interoperability of Data demands the use of formats, technologies and languages allowing sites to communicate.
- Then, researches in association between libraries become possible.
- Open access.

[GALLICA](#) is a [Digital Library of the BnF](#) (30.000 consultations /day)

One can pinpoint to an extraction in the Library.

For instance: The Colonial exhibition of 1931 Sound Recordings, as previously mentioned.

Various deposits are being edited following a tree structure and the access is highly facilitated.

The *Philippine Epics and Ballads Multimedia Archive* is also safeguarded at the Audiovisual Department of BnF. In the proximate future, a selection of items in the

collection shall be edited to be accessible as a brief presentation of the Collection, on GALLICA.

Illustration in PPT

A Program for Textometric Analysis *Lexico 3*

<http://www.tal.univ-paris3.fr/lexico/>
<http://www.lexi-co.com/>

A *tutul*, a long sung narrative unfolds as a very elaborate vocal gesture. The epic sets in motion a mental capacity of concentration and memorization of the singer of tales as well as the capacity to build, out of a succession, a configuration for a “mental text” composed of narrative elements and generic rules for reproduction and creation. This verbal art affects the sensitivity and stimulates multiple emotions among each member of the audience for the art of listening is at the same time pleasure and affirmation of a real presence. Hence we are, somehow, blind witnesses of many cognitive and multimodal motor activities, extremely elaborated and coordinated.

We shall try to focus successively upon some of these various mental processes and their mastery by way of performance and textual analysis.

It offers the analyst a tridimensional way to draw graphs, integrating motions following sequences and by doing so, the macro-structure of the plot of an epic is revealed in a single image. This graph is a heuristic map. It helps the analyst to capture a complex mechanism of the singer of tales’ mind mapping. Then the navigation of one’s mind is manifested and simultaneously reflected on paper).

The main functionalities are:

- segmentation
- concordances
- partitions
- repeated segments
- analysis of specificities
- analysis of correspondances

It was set in motion on the “*Mämiminbin*” epic and the results are partly published in the book ⁴(2000). The fillers of the voice, have been analyzed as repeated segments.

The vocal gesture

is not a given one, it has to be acquired by observing the breathing techniques of other singers of tales, by selecting the interpretative style that is most appropriate at the level of register, breathing capacity as well as the syllabic delivery of oneself.

For instance, a Pala’wan *mänunutul*, has to experience in his body various breathing capacities, as the basic unit of the composition is a “breathing group of words” (N.Revel 1983, 2000) in contrast to a measured and alternatively unmeasured

⁴ 2000, Nicole Revel & Mäsinu Intaräy, *The Quest for a Wife. A Palawan Epic Sung by Mäsinu / La quête en épouse..Une Épopée palawan chantée par Mäsinu. Mämiminbin*, Paris, Editions UNESCO/Langues & Mondes-L’Asiathèque, 440 p., [édition trilingue palawan-français-anglais], 1 CD, illustrations graphiques, 8 photos de Quincy Castillo.

heptasyllabic stanzas as found in a *kata-kata* among the Sama di Laut. He also has to adjust his own breathing and vibrating capacities to the 'mental text' that he simultaneously internalizes⁵(N. Revel , 1993). He conducts this work alone, most often in silence - the epic sings within himself - and usually sets himself aside from the glances and ears of others. He goes to the forest to be inspired by the aural perception of the sounds of wind in the canopy of trees as a gift, of a Good-Doer-of-the-Forest, *bingäy ät Mänungang Taw ät Gäbaq* or in rainy season retires to the field house in order to develop his mastery, in solitude. He gives himself fully to this act of imitation-appropriation, this *mimèsis*, as his memory has captured a story and the melodic cells, *lyäg* 'voice', of the various characters as sung by another before him in a recent past. However, he will introduce his own individual style, his 'signature' in many ways. The necessary adjustment between melodic cells, breathing capacity and mental text invites variations to take place and this way to compose generates variants in text and melody as Usuy exemplified it with "*Kudaman*" (N.Revel, 1983, 1992)⁶. It will reveal the very style of each singer of tales. In this sense, we can speak of living memory, 'la mémoire vive.' (N. Revel, 2013)⁷.

In 2015, another type of analysis has been set in motion with several programs for Sound Perception and Acoustics of the Voice as the following example to which we contributed:

**NATIV (New Trans & Interdisciplinary Approach of the Voice, 2015-16),
Institut de Recherche en Musicologie (Iremus), Paris-Sorbonne**

<http://collegium.musicae.sorbonne-universites.fr/projets/nativ.html>
<http://www.iremus.cnrs.fr/fr/projets-de-recherche/nativ>

Characterization and analysis of various types of vocal production.

The aim of this research project was to identify indices of perception, of classification and visual representations of the acoustic components of natural vocal production in particular, or sounds on instruments and synthetic sounds imitating the voice.

⁵ 1993, Nicole Revel, 1993, "Épopée" (N. Revel et al.) *Encyclopaedia universalis*, Nouvelle édition pour CDRom & édition imprimée, pp. 574-581.

2011, « Le chant de la mémoire », *Les lieux de savoir 2. Les mains de l'intellect*, Christian Jacob (éd.), Albin Michel, Paris, pp. 472-493.

⁶ 1983, Nicole Revel-Macdonald. *Kudaman. Une épopée Palawan chantée par Usuj*, La Haye/Paris, Mouton, *Les Cahiers de l'Homme*, 385 p., 11 illustr. A. Fer, 1 disque 33t.

1992, *Kudaman, Isang Epikong Palawan na Inawit ni Usuy*, Traduction de E. B. Maranan et N. Revel-Macdonald, Ateneo de Manila University Press, Quezon City, 401 p.

2000, 'Epic Singing in Palawan Highlands (Philippines), Vocal and Musical Styles', *The Oral Epic : Performance and Music*, K. Reilch (ed.), Collection *Inter-cultural Music Studies*, vol. 11, Berlin, VWB, Verlag, für Wissenschaft und Bildung, pp. 191-210, 10 illustrations.

⁷ 2013, Nicole Revel, « Vivid and Virtual Memory » in *Songs of Memory in Islands of Southeast Asia*, N. Revel ed. 340p. , Cambridge Scholars Publishing Ltd, Ch.3, pp. 27-58 + eBook .

Based on several digitized examples from various cultural areas at different epochs, the perception and production of vocal phenomena was analysed by bringing together various disciplines : acoustics on one hand and musicology, ethno-musicology, and ethno-poetic on the other hand. Western music and other world music cultures were analysed in order to capture the common feature in the extraordinary color range of vocal production.

This research was also an attempt to suppress the boundaries between Sciences & Technics of Information & Communication and Social Sciences & Humanities.

What are the constituents of a vocal sound ?

What are the perceptive, acoustic and musicologic indices characterizing the vocalicity of a sound ?

We started to make an audio-visual catalog of various types of vocal productions, aiming at a thesaurus that could be a reference for future analytical and comparative studies.

In the past, sound documents and analytical tools were missing. Nowadays, digitization of former audio recordings and audio-visual recordings safeguard the memory of performances among cultures with an oral tradition as well as contemporary music performances, and allow new analytical methods.

The descriptors of spectrograms used according to a *Music Information Retrieval* (MIR) approach⁸ are : (Lerch (2012), Peeters et al. (2011)) :

- The intensity - The spectral centre of gravity- The roll-off, with a limit at 85 - The spectral flatness -The flow.

Phonetograms representing on a plane the relationship between fundamentele frequency and intensity, have been made on the respective recordings.

The main features we were focusing on during the analysis of voice - distinct from instruments- are :

- spoken / sung (with distribution of durations)
- • breathing presence
- • fundamental frequency (f0)
- • spectral analysis : center of gravity, variance, spectral energy, etc.
- • voiced / unvoiced (f0, inharmonicity)
- • jitter, shimmer
- • tension (amplitude variations between h1 et h2) -> passage en M2

In collaboration with Deidre Bolger (now Research engineer at *Brain and Language Research Institute*, Marseille) we worked at the Langues-Musique-Sociétés (LMS , a unit

⁸ *Music Information Retrieval* (MIR) : Lerch (2012), Peeters et al. (2011))

of CNRS, 2000-2010, Villejuif). We analyzed the acoustics of the voice of the main characters of « *Silungan Baltapa* » a Sama Dilaut epic.⁹ In 2015, we contributed this program by an acoustic analysis of the motives in epic performances among palawan singers of tales. We selected three voices : two men, si Mäsinu Intaräy and si Usuy & one woman, si Karit.

Here is the description of the melodic motives linked to the six characters of « *Durus Mata* » 'Oblique Eye' sung by si Karit in 1971: the differences between them at the level of the melodic curve, average frequency and range of frequency was determined,

As the plot unfolds, we have studied the shifts of the woman singer's timbre of the voice and their links with the characters and the story, our main focus was on spectral centroid and a measure of the relationship signal-noise as roughness (jitter) or non harmonicity.¹⁰

A strictly musicological perspective focuses on the definition of "vocal styles" in a given repertoire : pitch holding, ornaments, vibrato uses, to transform or to synthesize the vocal sequences in a piece of electro-acoustic music. This perspective is close to the studies on musical gesture conducted at LAM.

PPT

Interdisciplinary Approach to Musical Gesture

A New attempt analysis of the relationship between Musician -instrument
GeAcMus (Geste-Acoustique-Musique) de Sorbonne – Universités
www.adem.ch/ce30 for consulting multimedia data

⁹ 2005, *The Voyage to Heaven of a Sama Hero / Le Voyage au ciel d'un héros Sama . Silungan Baltapa*, Geuthner, (édition trilingue: Sin., fr., engl.), Collectif, Nicole Revel, avec la collaboration de H. Arlo Nimmo, A. Martenot, G. Rixhon, T. Sangotot, O. Tourny, D. Bolger, Paris, 370 p., 4 photos noir et blanc, 1 DVDvideo (1fichier son : chant en intégrale + 1 fichier diaporama 110 photos avec récit (fr./engl) Réalisation N . Revel & A. Martenot). See Spectral Analysis of Timbre, pp. 240-247pp.

2004, Deidre Bolger, Computational Models of Timbre and the Analysis of timbre in Melody, University of Limerick, Unpublished PHD Thesis)

¹⁰ See : Michelle Castellango & Hugues Genevois, directed by, 2013, *La musique et ses instruments/ Music and its Instruments*, Collection Pensée Musicale, éditions Delatour France, LAM, 544p., DVD, compatible Mac & PC.

See : Michèle Castellango, 2014, « Écoute musicale et acoustique avec 400 sons et leurs sonogrammes décryptés » , 540 p., sur le DVD d'accompagnement.; le livre en pdf avec 400 sons intégrés aux formats MP3 et AIFF, Eyrolles.

See: 2017, Estelle Amy de la Bretèque, Boris Doval, Lionel Feugère et Louis Moreau-Gaudry "Liminal Utterances and Shapes of Sadness: Local and Acoustic Perspectives on Vocal Production among the Yezidis of Armenia", *Yearbook for Traditional Music*, vol 49.

Experiments have focused on long neck lutes in Central Asia, harps in Gabon, drums in Occidental music and xylophones in Cameroun, flutes and back-pipe were also tested. New protocols of collecting and analyzing the musical gesture in a laboratory, but also on the field, have been developed.

In this research, a caption of the gestures in 3D is set by camera électronique OPTI TRACK and 'VICON motion systems' emitting infra red light that captures the reflectors placed on the instrument and on the musician's body. The experiment is conducted by biomecanicians of the University of Compiègne in the collaboration with the musicians playing the musical instrument.

Here a harp from Gabon :

Various reflectors are fixed on the harpist body and optoelectronic cameras of 'Vicon motion Systems' are set around his body.

The system is resting on the reflection of captors of the infra red light emitted by the cameras. The tridimensional orientation of the musician and his motions in space are identified and reconstructed by a program.

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2017, Fabrice Marandola, Marie-France Mifune et Farrokh Vahabzadeh, «Approche interdisciplinaire du geste musical. Nouvelles expérimentations en ethnomusicologie », *Cahiers d'Ethnomusicologie*, 30 /2017, pp.45-69.

Logiciels : KINOVEA (en 2 D) and Mokka (en 3D).
