

Recordings of Edward S. Curtis

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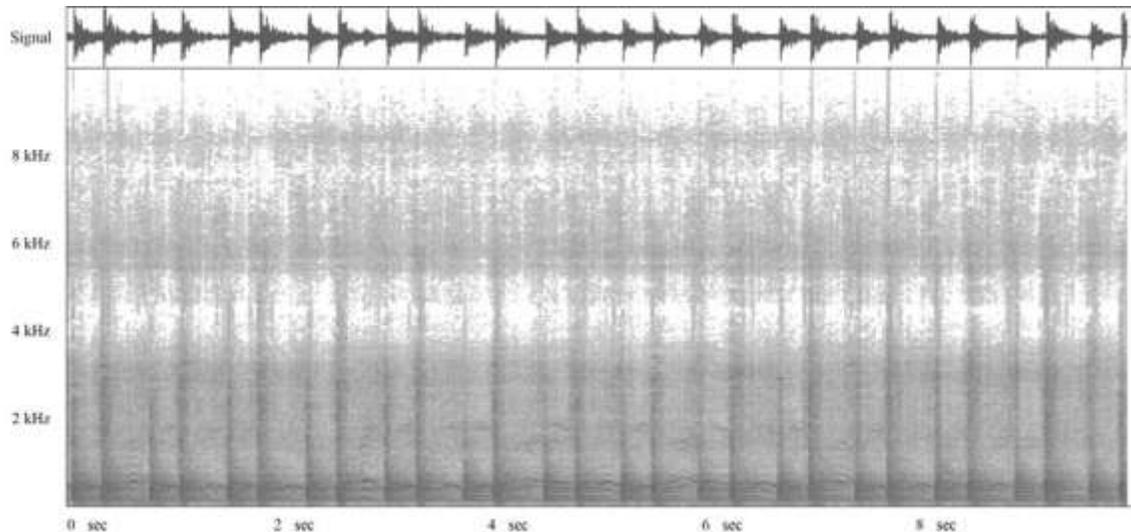


Fig 1. Spectrogram of a segment of 10 seconds of track [1. Medicine Bear Song, Atsina Gros Ventres.](#)

This exemplificative exercise was done as a result of a suggestion from [Nancy Rumbel](#) to search and analyze some of the first recordings of the past two centuries, as those of Edward S. Curtis. He published *The North American Indian*¹. In a search for Internet was found that in addition to the thousands of beautiful photographs he took of 80 tribes, he also recorded 10000 wax cylinders of their languages, rituals and music. Very few of them have been published. 22 digital tracks of the cylinders were found in [An Archive of Songs](#) that comes from the [University of Indiana](#). They are of songs (not discussed here)², but it is interesting that several tracks have sounds of drums played at a *tempo* or constant monophonic rhythm. An audio track was selected to do the exercise and show that it is possible to analyze, characterize its rhythm and confirm interesting findings, although no information is available about it. In Figure 1 is shown the spectrogram of a segment of 10 seconds of track [1. Medicine Bear Song, Atsina Gros Ventres.](#)

Despite the rudimentary recording technology used, the frequencies of the sounds of percussion are clearly enough to be analyzed, and generated up to 9 kHz,

¹ Edward S. Curtis published [The North American Indian](#) between 1907 and 1930 trying to register the Indian cultures Traditional. The work was published in 20 volumes of narrative text and photogravure images. It can be seen openly in a place of Northwestern University.

² Not even I know the language and the voices are more difficult to analyze. Seem onomatopoeic.

shown in gray vertical stripes and the periodic variation of the amplitude of the signal. The drum beats are of two repeated intensities, one low and other strong³.

In the window of 10 seconds 28 beats of the drum are shown or 2.8/second. With these data, it is possible to calculate the rate generated in 60 seconds (6 segments of 10 seconds), which is $6 \times 28 = 60 \times 2.8 = 168$ beats/minute. This means that it is induced in the brain an electrical signal through the middle of the lowest infrasound frequency range called Delta, which is 1-4/second and corresponds to the state of sleeping without dreams. As $168/3 = 56$, reinforces the heartbeat, as a nearest multiple of the minimum of normal male. It is believed that the special effect generated was crossed: for one, the delta frequency induced in the brain rest state and minimum energy consumption and, second, the increase of the heartbeat induced greater blood circulation throughout all the body. That could be analyzed experimentally.

That discovery had already been found in other monophonic recordings of northwestern of *America Mexicana*⁴ and other analyzed from Chile to Canada, but all characterized rhythms were generated in the Delta and Theta range (1-8 kHz), corresponding to our state of deep relaxation or meditation, and awareness relaxed, as it was shown in [Ritmo de la sipíraka](#), [Danza del venado](#) and [Ritmos yumanos](#) of ceremonial, medicinal or shamanic uses.

The exemplary exercise is short for readability. However, It demonstrates that these recordings of Curtis and many of hundreds of thousands more, which are sheltered or stored in music libraries and collections around the world, can be characterized with scientific techniques of signal analysis, without incurring in semiotic speculations.

I have already mentioned that the numeric characterization of the rhythms, also allows comparisons and correlations on the tastes and uses of sounds from different ethnic groups. It could be done more easily that with musical analysis techniques, natural languages or the little available information of them.

Even without information of the recorded tracks, as in this case, it is possible to do comparative analysis with characterized rhythms of them. For example, in Fig 2, the same window of 10 seconds is shown in track [3. Bull's Head Medicine Song](#).

³ It is interesting that the heartbeat also generate two similar signal intensity different, corresponding to operation of the inlet and outlet of the blood.

⁴ So they called the *Estados Unidos Mexicanos*, before the states north of the border were separated. The *Virreinato de la Nueva España* coverer more territory to north and south, and the indigenous of millenary origin lived in all the continent.

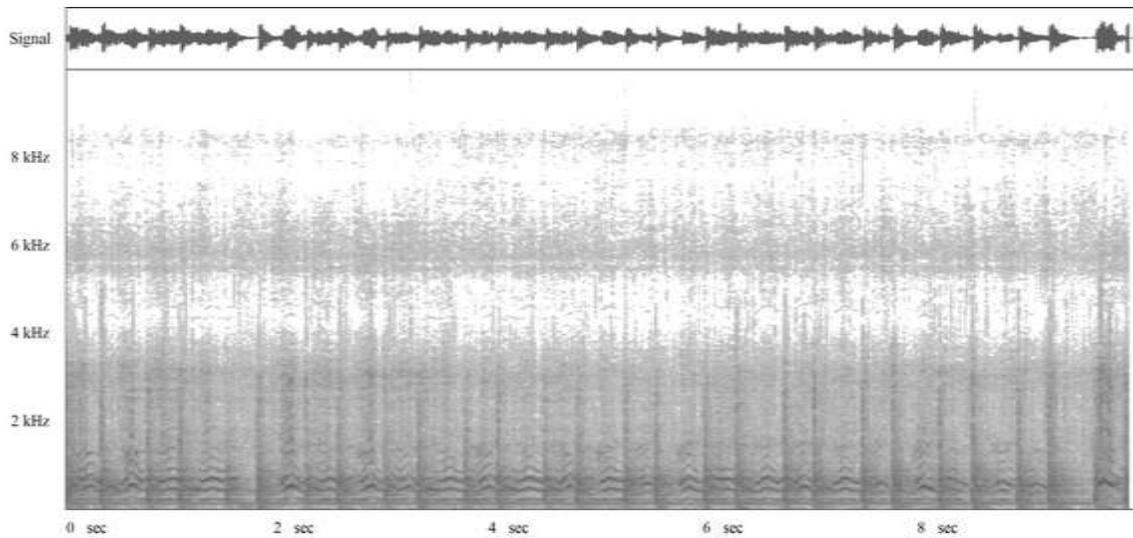


Fig. 2. Spectrogram of a segment of 10 seconds of track [3. Bull's Head Medicine Song](#).

In this recording segment the plotted frequencies of singing are stronger, which are shown in the lower part of the graph and it seems of the same singer. The frequencies of percussions from the drum also generated enough intensity to be counted. In the window of 10 second 28 drum beats are generated. This indicates that the rate is also 2.8 beats/second or 168 beats/minute. The special effect induced in the body and brain generated by that rhythm could be the same or very similar to the track 1.

Unfortunately, It has not found interested from institutions in these formal works of sound analysis, although it could also be used to capitalize on the great resources incurred for their recording, registration, conservation and guarding and to honor and remember the ethnicities uses of their ancient sounds and the researchers who recorded them with great effort for many years of his life, as Curtis. They can also serve to test and find sound therapies of current application at very low cost.

There are multi-million dollars projects and archives to preserve the wax cylinder records and of other materials at federal level as [The American Folk Center](#), [The Library of Congress](#) and [Returning Music to the Makers: The Library of Congress, American Indians, and the Federal Cylinder Project](#) in states as [Cylinder Preservation and Digitalization Project](#). [Cylinders Library](#). [University of California, Santa Barbara](#) and museums as [Phoebe A. Hearst Museum of Anthropology](#) and [Smithsonian Folkways](#), and many other including several internationals, but technical studies on the rhythms of the hundreds of thousands of ethnological soundtracks recorded in the past century around the continent are unknown.

Considering the findings, the special effects of the characterized rhythms may be the main cause of their use by many indigenous ethnicities of millenary origin of our continent and it is believed that those sounds is what more united and unites them. They may be the first cultural and social sounds, even before the

development of the languages. Some ancient rhythms still are used by many indigenous ethnic groups that remain⁵.

The URL of this consultation draft was sent to the institutions related with the recordings of Curtis and other specialized known forums and researchers.

Other exemplificative exercise on [War dance Song](#) was posted as a consultation document.

Feedbacks in English

[Nancy Rumbel](#), "GRAMMY Award winning recording artist, composer, performer and teacher". Since 1985, she is one of the best known international performers of the double ocarina. She commented:

Hola Roberto!

I so appreciate that you sent me a copy of the new Edward Curtis draft.

I am soooooo happy to hear that you are listening to the Edward Curtis sounds! I listened to a few of them myself thanks to the link that you sent to me. I wonder where the rest of those 10,000 recordings are? That is a lot of material! He was quite an amazing person who sadly suffered an incredible amount of personal strife in order to complete his mission.

I will look forward to hearing your thoughts about what you are finding!

I know of some other archives as well that I will try to seek out for you!

All the best,

Nancy

[Simon Wyatt](#), colleague from [ISGMA](#) group, commented:

Dear Roberto,

Thanks for the enthusiasm! I have just looked through your paper and think it is very interesting. I am amazed at other lack of interest!

I have an interest in early Native american flutes and have a few models I have made... I do not mean the block type flute but the straight bodied instrument similar to an arabic Ney. Of course we do not know how they were played although see this picture which I believe is taken before 1912. http://www.flutopedia.com/img_YumaPlayerFull.htm

The thing is I have seen another photograph, I think from 1919, which appears to show this style of flute but played as an Interdental type (Iranian style). I guess of course individuals could play it any way they like and this then does not help in thinking about the early examples from 700 AD or so, like those from Broken Flute Cave, Arizona.

⁵ There are still tens of millions of indigenous people in the Americas, despite the devastation resulting from the invasion, induced diseases, colonization, inquisition, plunder, slavery, murder, "ladinización", discrimination, etc. Although not even know how many of them are and many remain confined as prisoners of war or living conditions, extinction or annihilation. Many of them are not alive.

BUT if any of Curtis's recordings did have examples of flute playing, of this end blown type, perhaps we could hear the playing technique since the Iranian has a very wispy sssshhhh-like sound. Do you know if such a recording exists among those you have heard??

Yours querying.

Simon

My answer was:

Hi Simon,

There are many old American flutes made of cane, but I did not study them. There are similar ancient flutes from the northwest of Mexico, but they only have some pictures. Some of them still are played. It is interesting to know about the Flutopedia Symposium. I believe that some that are shown are not musical flutes. For example, "in the figure 57(b) is the upper pair of tied whistles": http://www.flutopedia.com/img/Dixon_1905_Fig57_p221_lg.jpg

They are from the web page http://www.flutopedia.com/flute_types_north_america.htm

They seem *gamitaderas* to call deer, as those presented at ISGMA (Fig. 15): <http://www.tlapitzalli.com/isgma04/mirliton/Velazquez.pdf>

It is impossible to play double whistles of that type at the same time. There are some of them in museums and collections of archaeological explorations, but they are not well recognized, as the "Cane Double Dance Whistle" of Phoebe A Hearst Museum of Anthropology: <http://pahma.berkeley.edu/delphi/object/326167> My experimental models with mirlitón work very fine!

It may be interesting to look for the first recordings of American flutes, but it is not easy to have access to all hundreds of thousands of recordings on wax cylinders. There are very few of them openly available in the web.

Now, I am studying monophonic rhythms, because I believe they are the first cultural sounds and they are unknown and ignored, even by the scholars.

Roberto

[Simon Wyatt](#) sent other comments:

I am amazed at the lack of interest in your Curtis paper, I had not heard of it before and think it is an incredible resource. I would have thought the Heard museum in Arizona would have jumped at the chance to study or fund research into this or perhaps the Museum of Northern Arizona or MIM in Phoenix. I would also have thought funding would exist, (although getting funding for research is not something that jumps out at you, I have found) perhaps from a company such as Sony?

I recently watched a programme which said Curtis doctored some of his photographs, to remove modern buildings and the like, so I wondered how he may have set the scene for the recordings... very interesting indeed.

Take care
Simon