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**Begleria:
From Individuality to Authentication and the Internet of
Things (IoT)**

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Begleria: From Individuality to Authentication and the Internet of Things (IoT)

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Abstract

As an American student/learner, my quest for understanding the Greek Komboloi and Begleria (K&B) during the last 20 years began with a few understandings and then was made to turn inward as new information on the subjects of (K&B) were out of reach in a proto—internet world to an adherent of the English language. As I grew, so too did the internet and my understanding of the (K&B). Utilizing what it had taught me about myself, I devised a technique whereby I was successful in quitting Tobacco Addiction. Finally, I did encounter the work of the late Aris Evangelinos which has greatly added to the world of (K&B). Today's world is now complex with electronics and gadgets and passcodes but the utility of the (K&B) remains constant: An interactive tool as unique as each person who carries one. Fit with proper sensors and algorithms, the (K&B), the best ones already being chiefly crafted of Electrum (sic) can carry forth their utility to provide the world with an authentication device capable of uniquely identifying each user. This simple task is of great importance as the digital world becomes unavoidable in society. Some companies want to put a chip inside each individual to ease the burden of authentication. This is already being thrust upon citizens who simply want to receive their government benefits in parts of Africa. The (K&B) offers a road map to an authentication device that does not rely on putting a chip inside of a person. If such a tool is ever successful to be designed, it is a perfect harmony that the inspiration is drawn from a tool derived to express and impregnate the individuality and the freedom of the wielder as well as some of their magic.

Keywords: *Begleria, Komboloi, Tobacco Cessation, Internet of things, authentication, individuality, freedom.*

Introduction

In the summer of 1996 I became a People to People Student Ambassador and I had the good fortune to travel to Greece for two weeks and Italy for two weeks. In Greece, I stayed with locals in Patras for 6 days which is where I first encountered (K&B) which are basically beads strung together and in the Greek tradition are spun around through various methods that are passed from person to person. My homestay family went out of their way to show me these objects and properly introduce them to me as I had picked up cigarette smoking earlier in my trip.

To see some quick video examples of (K&B) play, please go to the website: <http://edcforums.com/threads/begleri-a-fun-and-simple-pocket-sized-skill-toy.86931/> (EDC Forums, 2017)

For years with only a few threads of information about the (K&B) I continued to discover my own unique identification and skills by practicing the (K&B)

As technology progressed and computers could begin to download more than two emails per hour, so too did the communication of the (K&B) to but a person still has to know what they are looking for.

This same technological progression has in it a built in problem that has existed since the first recordings of all history, authentic identification. Without authentic identification, criminals can commit fraud against the state, people can commit crimes against other people and the individual utilizing the tools of the digital age could be made insecure, transparent and completely open to harmful attack.

Did the Greek already invent the authentication device? Could the (K&B) be turned into a digital tool to uniquely identify an individual in the emerging digital era known as the Internet of Things (IoT)?

Literature Review

My first experiences with the (K&B) were personal and given orally with demonstration. Over time I myself have published some materials to try to communicate the technique of the (K&B).

Now that the internet has connected the world, the work of the Evangelinos family has been both reviewed and greatly appreciated which includes emails with the late Aris Evangelinos from before and an interview with Helen Evangelinos and Rallou Gromitsari during my visit to the Komboloi Museum in Nafplion in 2018.

I have also asked probably every Greek I have met since 1996 about them and had the pleasure of meeting anthropologist, Thordis Simonsen who shared some important insight with me.

The internet itself has also become an incredible resource and inspiration as I continue to track current events and news over the years and have been able to find so much more information than was ever available before.

The notion of privacy in the current digital landscape is given a brief comparison in history across social classes. A single article stands out as the inspiration for this line of thought by Hershel Shanks, the editor in chief of the Biblical Archeology Review (BAR).

Methodology

Inspired by years of research of the (K&B), I see a pattern that can be replicated for the digital age. As a student dedicated to lifelong learning and a business owner that sees an opportunity as well as a human interested in individual freedom and responsibility, I have formulated some basic principles on which to establish a framework for developing an understanding about a current object in order to formulate a potential invention of a new product.

These basic principles are:

- Authentication without personal insertion
 - Dedicated to 100% accurate authentication without ever inserting a biochip into the person.
- Secure authentication is individually customizable and generative across variables becomes scalable and inventible as electronics become more communicable and varied with growth of (IOT)
- An authentication device is a device that authenticates an individual with an individual network of things and is user defined.
- Every user is issued a standard identification card upon issue of their authentication device.
- Any user that uses their authentication device to break any laws or do any harm revokes their privilege to privacy of their info.
- Users have full privilege to their privacy. Users' information is not tracked, sold or even hackable. User's (IOT) information is potentially the most valuable thing on earth and should not be intruded, extruded or impeded upon unless a sanctioned law enforcement body provides a warrant for an investigation which can only be carried out by a very special security team.

The next step is to develop the technology. Before that can be possible it is time to communicate these ideas to not only reflect on the implications but also to give credit to the inspiration of this idea: the Greek Komoboloi / Begleria and the people along the way that have transmitted the knowledge of the (K&B)

Findings/Results

Begleria via Greek Komboloi

The begleri is a manifestation of the komboloi. Both are Greek manifestations of prayer beads most closely related to the Islamic Komboloi.

Typically, the Begleria or begleri which pronounced with a thick Greek accent sounds more like *bacledi*, has less beads, between 2 and 6, then the Komboloia or Komboloi which has 13 or more beads plus a priest or mast.

Begleri beads are generally cylindrical and are roughly 20 mm in length with a 10 mm diameter. Two beads are typically used but more can be added as long as the cord, usually made of leather, is tied off at the ends so that when the begleri is set down there is only one row. Greek Komboloi, on the other hand typically use smaller beads and are arranged on a longer cord that is looped and tied to itself so that when it is laid down there are two rows of beads and typically has thirteen beads of similar character arranged in this fashion and a tassel is employed where the cord is tied together.

Another insight comes directly from a conversation I had with Helen Evangelinou, co-proprietor of the Komboloi Museum in Nafplion where I asked why sometimes there are less beads and sometimes there are begleria instead of komboloi and she said simply that they broke while making the gesture with her hands showing that the beads became scattered. (Evangelinou, 2018)

She also says that the size of the beads on the komboloi typically determines the number of beads that will be represented. A regular sized komboloi has 33 beads but many people like komboloi with beads that give a good size ratio to about 20 beads are also very popular. (Evangelinou, 2018)

In my conversation with Simonsen at a festival she told me that in her time spent living in Greek villages she observed that the men spent more time with their komboloi than they did with their wives. (Simonsen, 2016)

Greek War for Independence

The Begleri is a broken or shattered or uniquely weathered Greek Komboloi. The Greek Komboloi is a Greek Traditional item that is an evolved form of the Muslim Komboloia. The Muslim Komboloia has 33 beads plus priest or mast and is used to count/perform the 99 incarnations of Allah prayer. In 1453 the Byzantine Empire fell to the Ottoman Empire and most of Greece came under Ottoman rule. It was not until the Greek War of Independence from 1821-1832 that Greece was able to win its sovereignty with the help of the French Expeditionary Force, as well as the French, English and Russian Navies. (Anonymous, 2014) During Ottoman control Greeks evolved culturally yet were able to keep a distinct national identity. The Greek Komboloi evolved from the Muslim Komboloia and came to symbolize the unique Greek character and culture as well as a spirit of free will against their Muslim oppressors. In other words, the Greeks played with the beads, making clacking

sounds with them instead of praying to Allah. Greeks continue to clack these unique objects and carry them as companions. (Evangelinos, 1998)
Gromitsari confirms in, “Amberthe Tears of Apollo,”

The oppressed Greek found out a way to express his feelings; it was mainly the lack of the most important ideal, the love for freedom, which led him to invent this object. Therefore, it is not a coincidence that “tespin”, this strictly sacred object of the Turkish conqueror, to become for the Greek a place through which he could express his freedom and his lost pride. Through this object the Greek starts to express his deeper feelings... (Gromitsari, 2014)

From there Gromitsari explains how the object becomes one of play but more than that,

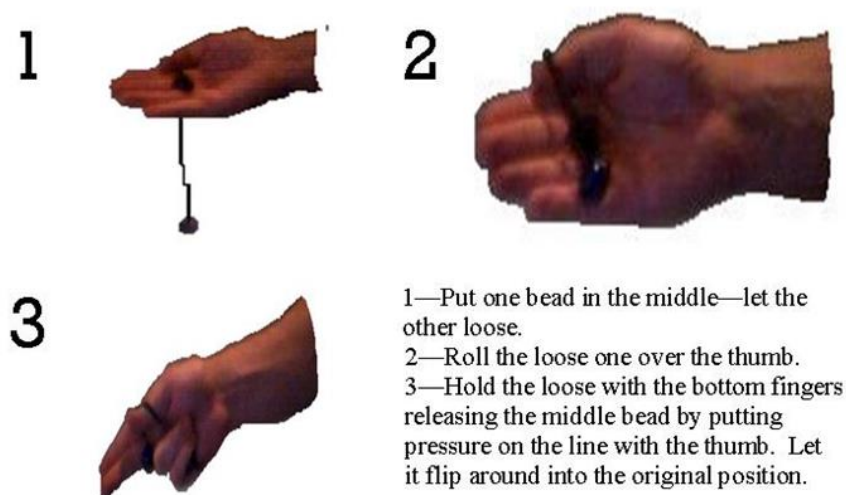
Komboloi is a magical – sacred place, a place of our own. It is a way through which we travel to our own internal “distances”. But this time these distances have to do with our personal truth, that assist us to conquer the essence of our existence. (Gromitsari, 2014)

Individuality

“Know thyself,” the famous maxim inscribed on the forecourt of the Temple of Apollo at Delphi, is central to the exploration of the (K&B). Personally, to begin, I was told only a few techniques and some purposes for it, which included quitting smoking cigarettes.¹ In many ways I feel over the years that I have found myself through some of these certain exercises and attitudes towards inner development aligned with some connection to the outer universe.

¹(Gerd, 2018)

Figure 1. *Graphic I created to illustrate basic begleria technique*



Please Be Careful and Bacledi for Love and Peace :)

For ages 5 and up!

A person's fingers are not just naturally prone to make the motions necessary to make the (K&B) twirl. It takes practice and even a little skill. A person can challenge themselves too. For instance, at one point after years of practicing what I knew with the (K&B) I finally decided to go for it and try to get used to wrapping the bead around my ring finger and challenged myself again to be able to do it in both hands. Once I determined to do this it was only a matter of time before I perfected the technique to do something new with my own hands. I must have been about 26 years old at that point.

This improved dexterity benefits other areas of my life, especially my work life where I prepare tiny samples for a machine to determine their chemical analysis and with my (K&B) experience, my fingers are nimble and focused enough to do this. Furthermore there is something about interacting with objects in general. The begleria trick is just that: a trick and there are lots of objects with lots of tricks. To some extent any object can be bacledied. I have seen people flip coins, lighters, styx, hackey sacks, hockey bucks, soccer balls, orbs, chainsaws etc... over the years.

As a device to help quit smoking I found the begleria to be helpful, not only by a sort of replacement type of therapy but finally as a mental tool. The first idea is to carry the begleria in the same pocket as the cigarette lighter so that when the individual goes for the lighter, the begleria will be pulled out instead or by accident.

I was immune from this simple distraction however and also able to smoke or bacledi with either hand I had to put more effort into quitting smoking. The

first time I tried to quit I replaced the smoking with running and this really helped but as soon as the challenge was over I fell back into the habit. I eventually analyzed all the habits and the financial considerations and the physical considerations of smoking. I even analyzed the companies involved in tobacco sales from a marketing stand point as well I have watched as cigarette companies are being targeted for large lawsuits and negative press over the years.

When I finally was able to quit smoking though it was because I had finally desired it so much that I would imagine the black lungs and horrible pictures that are placed on cigarette containers these days and I would say to myself how bad the thing is while I was inhaling the smoke.

This mental and physical exercises I came up with finally caused my mind and my body to make the connection and I had no choice but to toss the cigarettes or risk instant sickness as I now became sick to my stomach from only small amounts of cigarette smoke.

Privacy

With new technology pushing the boundaries of what can be recorded and what can be stored, privacy ought to be an issue of concern. A person might subsume a role of anonymity amongst all of the ubiquity, however in observation of history it might be prudent to keep as much of the terms and conditions of privacy arrangements between the consumer and the companies that provide data, social media or other digital services that become available, in full view.

According to Hershel Shanks, editor of the *Biblical Archeology Review* Medieval kings would not only greet guests while sitting on the stool or privy but attendants were paid to poke at the king's waste to make sure that the king was in good health. This was considered a duty of royal import. (Shanks, 2012)

So historically there was nothing private about a privy at least not for a medieval king, the most important person, supposedly. Perhaps his notion of privacy comes from the information staying within in the castle walls. Even the king would foment about his personal information getting out in a way that could cause some scandal or other embarrassment.

Hopefully for the concern of the individual there is a way to opt out of such a service. However, as the facebook and Google generation is already well aware, targeted advertising has already become the norm. The fast pace of advancement in technological areas are having cultural ramifications prior to anyone's ability to forecast them.

Authentication

Authentication of users has been an important issue throughout human history. Even in the New Testament, Joseph and Mary were ordered by the government of Judea to return to their Nazareth for the census. Who knows how cases of fraud were dealt with in those times and place. Today Fraud

makes up a huge amount of financial loss in almost every sector of society. For example, it is reported that consumers lost over \$16 billion dollars to identity theft in 2016 (Grant, 2017)

The financial opportunity to profit from reducing the financial, emotional and personal losses associated with identity fraud is viable as it has been shown that efforts do yield rewards. In today's digital world digital authentication is done mainly through password protection but thumbprint, handprint and even facial recognition and retina scan authentication systems have been developed.

With the forthcoming technologies that will empower the IOT, Virtual Landscapes, Virtual Reality, new Point of Sale Technology, et cetera... user authentication and personal network security will not only empower individuals but also reduce costs to companies and governments.

IoT and Authentication

With the caveat that a company can be trusted with certain amounts of private data the individual has the choice to plug in a few things now like cameras and phones and tvs and blue ray players, computers and cars. Soon more things will be able to be plugged into a network of things that are owned and controlled by an individual and or even a group or groups of individuals: door locks, windows, curtains, coffee makers, water distillers, pens, pencils, shoes, shirts, foods etc...

Companies are already using these capabilities to reclaim property. Take GM for instance and their ability to track their vehicles with GPS. Now people who become delinquent on their payments can be found much easier than before. (Michael Corkery, 2017)

Mention of how all this tracking may extend into the future and beyond the wallets people carry as metaphorical skins in which to harness/carry their societal identities or metaphorical selves, may someday prove outmoded is scant but perhaps DARPA's latest in roads will give some clue as to what is possible and the potential direction of the technologies being developed:

The program's first year will focus on making fundamental breakthroughs in hardware, software, and neuroscience, and testing those advances in animals and cultured cells. Phase II of the program calls for ongoing basic studies, along with progress in miniaturization and integration, with attention to possible pathways to regulatory approval for human safety testing of newly developed devices. As part of that effort, researchers will cooperate with the U.S. Food and Drug Administration (FDA) to begin exploration of issues such as long-term safety, privacy, information security, compatibility with other devices, and the numerous other aspects regulators consider as they evaluate potential applications of new technologies. (outreach@darpa.mil, 2017)

Hence, the implantability of electronic systems into human bodies is established and the work being carried out to do such things is being done for

medical benefit of the injured at this time.

Discussion

Begleria Authentication

Even with a chip that is inserted inside of a human body there could still be a risk of fraud. Perhaps, there is a better way that does not risk contamination of the body. Perhaps there is a fuller way to record a person's motions and movements that is also more private for the individual. Perhaps there is a way to empower the individual to have all the control over this aspect of their life.

Not only is the begleri itself a historical object and symbol for breaking the bonds of oppression while at the same time breaking the conventions of a "noble" class but the begleria is also present with the person as they meditate their thoughts. In some ways I perceive the begleria to be an amplifier and I think that with all of the sensor devices currently available that a begleri can be modified to become an authentication device.

Current examples of the sensors available being used for research in prosthetic hands are simultaneous multiple stimuli sensing: Temperature, in-plane strain, humidity, UV light, magnetic, pressure and proximity. (Qilin Hua, 2018)

I think that combined with some of these sensor's a motion and position sensor along with a user defined algorithm could turn a begleria into an authentication device.

Conclusions

The need for accurate authentication is apparent however the means to achieving a fool proof system have evaded governments and companies for thousands of years. The individual requires both freedom and a sense of self to be an individual and the begleria is itself an object that manifests that freedom by breaking away from the traditional prayer routines to focus on the individual klacking of beads to go with the rhythm of the individual's heart and mind intertwined with the beads and environment.

Somehow these actions can only be that person and no one else. Only that person will know themselves.

As it should be, a company that is privy to to the knowledge of a person's self should not hold it out in front of them to temper fortune or favor or to oppress because an honorable person should not be suppressed with themselves. Therefore, a company in such a position will hold in the highest security this information so that the individual can remain free of tyranny against themselves.

A device based on the (K&B) could be such a device. A company that creates such a device needs to keep these principles in mind for the good of the

freedom of humanity and the individuals that make up the humanity. The sensing technology is available but might not be small enough yet. Perhaps some individuals will prefer the larger sets of komboloi to begin.

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