

Hidden Codes and Grand Designs

A Code-breaker's Tour
of Secret Societies

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2 - HIDDEN CODES AND GRAND DESIGNS

Introduction

Writing about secret societies is a paradox. If they are so secret, how do we know about them? And pretending to write about their hidden codes adds to the paradox. Secret activities are traditionally concealed behind codes and ciphers. Yet time passes. Secrets eventually float up from the dark waters of occult groups and mystic communities. However secret their activities, humans love to leave some traces behind. Eventually they hope to survive through their actions and creations. They wish to keep their actions secret but their grand designs have to be public, the better to amaze the universe.

We humble curious and historians can only stand outside of their secret worlds and gaze at their achievements or explore whatever archives reach us. In that sense, their code is both their most intimate and their most vulnerable secret. It can be the code of their secret ciphered exchanges, or the esthetic code of their achievements. Breaking and entering in their codes leads us to the knowledge of their daily arcane life as well as to the understanding of their great achievements.

We now live in codes. The world we develop and we live in is more coded every day.

We use codes to open and close our houses, our cars, our computers, our cell phones, our emails, our bank accounts, and so on. These codes are strangely similar, not to say identical, to the magic formulas of the old fairy tales, where wealth and life depended on the knowledge of one word. A sesame would open caverns or stop armies. Today, digital keyboards everywhere await our codes, and amulets we call credit cards generate money from ATMs. We live in a fantasy writer's dream. No wonder fantasy books and films are so successful. They depict our daily life.

Coding becomes a virtual extension of the ‘skin,’ defining what we are and what we are not: *I code, therefore I am.*

All this magic relies on computers managing the business of delivering, remembering, and checking the codes. Computers themselves work on programs, which are codes, the critical links between human thought and non-human

machinery. Codes within codes within codes, as formerly wheels within wheels, but the former watchmaker's world has given way to the more subtle programmer's world. Subtle or complex? Should we fear the day when one more code will gridlock the whole system or the day when codes carry on their business without caring about us?

With codes managing security, we don't have to carry physical keys anymore. We carry codes in our head. Is that how society protects itself against the mentally insane? Lose your mind, lose your memory and you are shut out of your house, your car, and the rest of your life. Remember sanely your codes and you are back in your world. Or, is that how we progressively give the keys of our universe to memory proof, absolutely logical machines, which will never fail to remember the codes?

As you'll see in chapter 2, "Pythagoras, the First Coder," that must be how a Greek named Pythagoras felt in front of the universe, two millenniums and a half ago. He intended to break the codes of nature. Knowing the codes, he could become a player, instead of a bystander indefinitely played by the world. The pentagram, the right angle, the perfect numbers, were Pythagoras's mystic set of keys. With these keys, he could start creating too, assured that his creations would be as valid and as beautiful as the original creation. Ever since Pythagoras, mystic societies have revered Pythagorean codes and striven to transmit them. Architects, builders and artists have lived by his codes to guarantee the esthetic value of their works.

This book explores how codes - cipher and esthetic - have come to exist and develop, parallel to common open writing and talk. Coding is probably as old as humanity. We follow the developments of code from the ancient world of Pythagoras and Aeneas the tactician (chapter 1, "The Dawn of Code"), to the present.

"Code" is a rich and ambiguous word. It can be an absolute reference, as a moral code, an esthetic code, a code of honour, or a dress code. It can also be the key to a cipher, where one purposefully hides a meaning that someone else will read with the same code. This means it can be a key to becoming true with your surroundings or a key to treacherous diplomacies loomed against your brothers. We follow these two threads throughout the book because they cannot be separated.

They have been a concern of people like "pure" mathematicians Pythagoras (in 600 BC) and Alan Turing (in 1940), who believed in becoming true with one's

surrounding, but who also had to take part in local wars.

Ciphers are fascinating subjects because cipher making and cipher breaking look like puzzles applied to real life. The contest between the cipher maker and the cipher breaker is the ideal match of brainpower between two minds. Coders and code-breakers keep outwitting each other. "It may be roundly asserted that human ingenuity cannot concoct a cipher that human ingenuity cannot resolve" wrote Edgar Poe in 1840. Indeed, the history of cipher has proven that no secret writing resists breaking forever. Some breaking into may have taken several centuries but eventually all succeeded. We see in chapter 6, "Homophones and Vigenere" that the Vigenère method, for example, was renowned for three centuries as the absolutely unbreakable cipher... only to be finally broken and laid open by a simple solution.

Although it looks like a puzzle, it is important to stress that a cipher is not a puzzle. What is the difference? A real cipher is a conversation. It involves three persons: the sender, the receiver, and the breaker. The sender writes a text, turns it into a "ciphertext" with a certain code and sends it to the receiver. The "ciphertext" is supposed to be unreadable by the breaker. Later, the receiver, knowing the code, is able to get back to the original "clear" text. But this is not happening in the virtual world of games and puzzles, it is happening in real life, which has two consequences. First the coding method has to be practical and as fool proof as possible: the coder needs be sure the receiver will read the message easily and correctly under stress and difficult conditions, in a combat environment or in a diplomatic mission in a hostile country. Also, the sender and the receiver know that the code-breaker's success or failure are a matter of time: given enough delay, ingenuity or plain intelligence information will bring clues and help to crack the code wide open. A cipher can always be made harder to break, by simply coding and recoding a message several times, as you would put a safe in a safe in a safe, but chances are it will become unbreakable for its very users. The risks of error will be high, not to mention the time lost in coding and uncoding. A simple mistake in one of the steps will render the result hopelessly useless.

In practice, the choice of a cipher code will be an acceptable risk where a workable code will protect the message at least as long as its content is useful. But this means walking on a thin line. For instance, historians say Napoleon was defeated in Russia mostly because his code was too easy: The Russians often uncoded and read his ciphered orders even before his generals could read them. On the other hand, the Vigenere code was still used in World War I and World

War II, a century after everybody knew how to crack it. In combat environment, it held long enough to protect short-lived information.

Esthetic codes are the other, brighter side of coding, as the Vitruvian saga teaches us.[Okay to make this reference this way instead?] Unlike cipher codes, they are meant to be obvious. They intend to touch the heart before the brain. Esthetic appreciation should come before logical analysis. Paradoxically though, the esthetic value will be all the more intense when a strong hidden logic supports the code. Ever since the Pythagoreans an esthetic code is considered perfect when it is based on perfect mathematics or a perfect logic, yet reaches our heart directly even though the very logic is hidden. With esthetic codes as with cipher codes, we end up with a necessary compromise. The code has to be refined enough to be esthetically perfect and simple and versatile enough to be usable in all situations. Pythagoras' genius produced that rare combination with the golden rule twenty-five centuries ago.

Were this book a novel, its main character would be code, wearing varied masks, whether appearing in communications, in esthetics or in morals. In this epic, we humans are the code's partners. We pride ourselves in being the codes masters, enjoying an inborn right to create it and to use it, disregard it or discard it, but the reality of our relationship with code is more complex. We do create code rather easily but code eventually gets the better of us. We often find ourselves inextricably bound by our code, to the point of being paralysed in double or triple-bind situations (our quest for freedom, our need of security, and our curiosity for new technologies, each with its own exclusive code)

Even worse, a new situation arose in the twentieth century: code underwent a quantum leap, acquiring independence and autonomy. Today, code still depends on us to create and develop it but this acquired autonomy already lets code spread and act beyond our possibility of control. Millions of little frankencodes are out there, swarming in the virtual sphere of the Internet and electronic communication. Are these ultimate grandchildren of Pythagoras codes a help or are they a danger greater than the global warming of the planet?

A note about the content and design of this book: in addition to pictures and graphics, this history of code features many examples of ciphers and codes, old and new. They can be seen as challenges by the puzzle-minded reader, exercises by the industrious reader, or else as eye-catching illustrations by others. Who wants to read about codes without seeing some? To satisfy the esthetically minded reader, chapter 10, "The Cipher Gallery," is a pure portfolio of code design. Some of the coded texts contain collateral data on the subject yet without influence on the general understanding of the story.