

---

AI translation · View original & related papers at  
[chinaxiv.org/items/chinaxiv-202310.01382](https://chinaxiv.org/items/chinaxiv-202310.01382)

---

## Using Evolutionary Theory as a Tool to Explore the Essence of Media and Its Developmental Laws ——Post-Print of the Transcript from the “China News Media Technology Development” Salon

**Authors:** Chen Xuguan

**Date:** 2023-10-08T00:00:00+00:00

### Abstract

At present, media technology continues to innovate and new media forms emerge endlessly, while media practitioners are busy promoting and implementing media convergence. While forging ahead, it is sometimes necessary to look back and examine the complex, randomly varying trajectory of communication media to explore the essence of media, reveal its developmental patterns, and thereby better grasp the direction of media technology development. The book *A History of Science and Technology Development*...

### Full Text

## Using Evolutionary Theory as a Tool to Explore the Nature and Development Patterns of Media: A Transcript of the “China News Media Technology Development” Salon

**Reporter:** Chen Xuguan

At present, media technology continues to innovate and new media forms emerge endlessly, while media practitioners are busy promoting and implementing media convergence. While forging ahead, it is sometimes necessary to look back and examine the complex, randomly varying trajectory of communication media to explore the essence of media, reveal its developmental patterns, and thereby better grasp the direction of media technology development. The book *A History of Science and Technology Development in Chinese News Media* traces the evolution of media and proposes that “symbols are the genes of media,” and that “the mutation of media genes (i.e., information symbols) and the improvement of gene (i.e., information symbol) replication mechanisms are the sources

of media evolution and iteration,” attempting to provide a key to unlocking the maze of media evolution.

### **1. What Is the Essence of Media?**

The essence of a thing, simply put, is the internal principal contradiction that determines its patterns of movement. By reviewing the history of Chinese news media development, the authors argue that the essence of media is its communication capacity (or communication power). It is the contradictory movement between people’s growing information needs and their constant pursuit of novel perceptual experiences, on the one hand, and the insufficient communication power and inherent limitations of media, on the other, that drives media development and evolution.

— Li Guohua, Vice Chairman, China Federation of News Technology Workers

### **2. What Research Methods Should We Use to Examine Media Development History?**

Using history as a mirror, we can understand the rise and fall of things. But what research methods should we employ to examine the history of media development?

— Sun Baochuan, Former Chairman, China Federation of News Technology Workers

Evolutionary theory serves as both a philosophical framework and a research tool. The authors attempt to use evolutionary thinking and methods to sort through, examine, and explore media evolution and its underlying patterns. Despite various flaws and questions surrounding Darwin’s theory of evolution, no biologist to date denies that species have evolved. In 1865, Mendel used mathematical models to study genetic phenomena, anticipating the existence of genetic genes. While Darwin’s theory did not clarify the nature of heredity and variation, modern evolutionary theory overcomes this shortcoming by taking genes as its research object. Moreover, evolution is not merely a theory of biological evolution but also a philosophical framework and research tool; its influence on social sciences far exceeds its impact on biological sciences. In a broad sense, evolution refers to the process of change and development in things, which naturally includes the evolution and iteration of communication media. Therefore, the authors believe that using evolutionary theory as a research method to examine and discuss media development history is a viable option.

— Zhu Youqin, Deputy Director of the Technology Committee, Shandong Dazhong Press Group

### 3. How Should We Periodize the History of Human Communication Development?

Marshall McLuhan's view that communication media have gone through three eras—"oral communication," "written communication," and "electric communication"—is understandable, given that computers had not yet been widely applied in his time. In *Understanding New Media: Extending McLuhan*, Canadian physicist and communication scholar Robert Logan refined this framework, dividing the development of human communication media into five eras: "non-linguistic analog communication," "oral communication," "written communication," "mass electric communication," and "interactive digital media or new media." Some domestic scholars have divided media history into five developmental stages: oral media, written media, print media, electronic media, and digital media.

The authors argue that body language, oral communication, and non-linguistic communication using objects all occurred in the "prehistoric" period before written records, and all primarily used human organs as communication tools. Therefore, they should be grouped together as the "prehistoric communication stage." Meanwhile, the "digital communication stage" should be divided into two phases—"digital communication" and "network communication"—because although both use digital symbols, their symbol replication mechanisms are different, and their communication effects are entirely distinct. Accordingly, the authors divide the development history of human communication into six stages: "prehistoric communication," "written communication," "printing communication," "electromagnetic communication," "digital communication," and "network communication."

### 4. Does Communication Media Consist of Two Elements or Three?

People usually believe that communication media are composed of information symbols and communication media (in the sense of physical carriers). In fact, human communication has another important element: "channel." The so-called "channel" refers to the connection points between sender and receiver in the communication process or the pathways through which information flows and diffuses. Perhaps because it shares similar characteristics with physical media, people often confuse the two. In the internet era, the role of channels has become prominent, and non-material interpersonal connections (such as "friend circles" and "fans") have significantly increased their share. Consequently, industry professionals have offered the following explanation: "In the mobile era, communication media are breaking through cognitive boundaries. Today, the term 'connection' appears more frequently in our vision. Current communication is no longer limited by any physical 'medium,' but rather involves the infinite 'connection' of information, terminals, and human bodies. Therefore, any connection point and channel within the 'pan-connection circle' can be called a 'communication medium.'" This formulation contradicts the material nature of "communication media." The authors argue that rather than forcibly

incorporating “channel” into “medium,” it is better to list “channel” as one of the three major elements constituting communication media—that is, communication media are composed of symbols, physical media, and channels. This better reveals the essence of media, allows the role of “channel” in information communication to be “returned to its original source,” and better explains communication phenomena such as “whoever controls the communication channel controls the users,” thereby placing greater emphasis on the exploration and innovation of communication channels.

## 5. What Is the “Gene” of Media?

According to biological evolution theory, scientists have discovered that the evolution of biological forms mainly originates from gene mutation. So, does media evolution also mainly originate from the mutation of media “genes”? If so, what exactly are the “genes” of media? Humans are born as a life community, and mutual communication is one of the necessary conditions for human survival and development. The premise of communication is that humans can “create” and “use” symbol systems; human society is built upon the foundation of people using symbols for interactive communication. The essence of biological heredity is the replication of genetic information (genes), while the essence of media communication is the replication of information symbols. The authors argue that the “gene” of media is the information symbol.

Scientists have discovered that gene mutation is the source power of biological evolution. Similarly, the mutation of media “genes” (i.e., information symbols) is the source of media evolution and iteration. In the history of human communication, information symbols have “mutated” successively from body symbols to language symbols, written symbols, electromagnetic symbols, and digital symbols, leading to the emergence of different forms of communication media such as body language media, oral media, electromagnetic media, and digital media, and achieving iterations from body language communication to oral communication, written communication, electromagnetic communication, digital communication, and network communication.

Scientists have also discovered the fact of “whole gene replication,” thereby proving that “genetic information replication is also a driving force of biological evolution.” Similarly, the improvement of media gene (i.e., information symbol) replication mechanisms has also brought about media iteration and development. From written communication to printing communication, and from digital communication to network communication, the “genes” (information symbols) of media did not change, but the replication mechanisms of these “genes” changed. The authors thus emphasize that the unique human symbol system is a key to unlocking the maze of media evolution.

## 6. What Is the Significance of “Media Evolution Theory” in the Present Context?

Conventional biological breeding methods include traditional selective breeding, mutation breeding, hybrid breeding, and more recently developed genetic engineering breeding (including transgenic and gene editing). Their basic principles are all based on gene mutation or gene recombination. Similarly, media innovation is nothing more than these few methods, and examples of each can be found in media evolution.

For instance, what people now talk about frequently—media convergence—in simple terms, “convergence” means “hybridization” or “crossbreeding.” In fact, in the history of communication, the birth of every communication medium has been the result of the “crossbreeding” of different ideas (points, creativity, and even inspiration), different technologies, and different media. The key to media convergence is to achieve the recombination of genes (information symbols) and complementary advantages of different media. Only when old and new media integrate, learn from, absorb, and complement each other, maximizing their respective advantages, can they achieve win-win outcomes. As General Secretary Xi Jinping has emphasized on multiple occasions: “The key to convergence development lies in integration into one and merging into a unity,” “moving as soon as possible from the ‘addition’ phase to the ‘fusion’ phase, from ‘you are you, I am me’ to ‘you have me, I have you,’ and further to ‘you are me, I am you,’ striving to create a batch of new mainstream media.”

The authors argue that in media innovation, we must avoid the “grafting” trap. In biology, grafting involves attaching a bud or branch (scion) of one plant onto another plant (rootstock) to grow into a complete plant. However, it does not involve the recombination or alteration of genetic genes; it only achieves quality improvement through the nutrient tissue of the rootstock and cannot produce new varieties. In the early days of the internet, many newspapers moved news content from print to web pages, thinking they had achieved internetization—this was taking the wrong path of “grafting.” The reason why China Mobile Multimedia Broadcasting (CMMB) did not develop into a new news media is certainly multifaceted, but failing to achieve true “gene recombination” and “complementary advantages” with mobile internet and falling into the “grafting” trap was an important reason.

## 7. From the Perspective of Media Evolution, How Should We View the Future Development of Media?

The development of information technology is unlimited, and media evolution will certainly not stop here. The authors believe that the last mile of human information communication is not the digital network, and the final baton is not digital symbols either. After our five senses experience the world, they convert various information into bioelectrical signals (neural signals), transmit them through neural networks, and concentrate them in the brain. After processing

by the brain, humans generate various sensations. However, we do not know how the brain works. Scientific experiments have discovered that two quanta far apart (kilometers, light-years, or even farther) with no relationship whatsoever—when one undergoes a state change, the other almost simultaneously shows the same state change. This is called quantum entanglement. Whether quantum entanglement exists in the human brain, in the human cognitive world, we do not know. Since quanta can be entangled, then the sixth sense might also exist. We can boldly imagine that if humans decipher the secrets of the natural human brain, once we understand the symbolic codes of neural signals and the transmission mechanisms of neural networks, we might be able to construct a human “brain network system” through the integration of biological gene technology and media technology. Through the sixth sense, we could achieve direct information transmission between quantum computers and human brains, and between different human brains. Human communication might then enter the era of quantum symbols and neural network communication.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv — Machine translation. Verify with original.*