

BC

BEFORE COMPUTERS

On Information Technology from
Writing to the Age of
Digital Data



Handwritten characters in a cursive script, likely representing an early form of data or code.



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2. Sending messages: the post

Why do we want to write things down? Here are some (not exclusive) reasons:

- in order to organise our thoughts
- in order to remember (remind our future selves)
- in order to communicate with someone else
- in order to communicate with many other people.

The first, organising information, I will discuss later, in Chapter 6. The second, writing as a memory device, I will simply assume. This chapter and the next two are devoted to the idea of sending messages, over space and (usually of necessity) over time. We are concerned with the occasions when the author of the message and the intended recipient(s) are apart, and the message cannot be passed by simply talking across a room.

Messengers

You don't absolutely need to write something down in order to send a message to another person. A human intermediary, who can remember a spoken message, go and find the recipient, and repeat it (exactly or in essence) is of course a perfectly plausible means, which has been used no doubt since spoken language was invented and continues to this day. Many early societies relied heavily on such messengers.

But one of the reasons why writing is so important is exactly that we no longer need to rely on the memory of a single messenger. This method is hardly feasible if the message might have to pass through many intermediaries before it gets to the recipient. If the sender can write the message or

cause it to be written down, then she can be much more confident that the recipient will receive what she intended, and not some garbled version.

Once you have a system of writing, it is possible to think about systematising the transmission of messages.

The medium

One limitation in this regard is the medium used for writing.

The clay tablets of ancient Mesopotamia were not terribly suitable for carrying around over distances—they were better suited to local record-keeping, individual memory or message transmission over time rather than space. Carved stone is even harder to move around (despite the story of Moses bringing the tablets down from the mountain). So serious letter-writing had to await the invention of a suitably transportable medium.

Over the millennia, several such media have found use. But pride of place in the classical world belongs to papyrus. Made from the dried leaves of the papyrus plant, this medium could be used to construct very substantial messages—whole books were written on papyrus scrolls.

From the time of its invention by the Egyptians, probably in the fourth millennium BCE, the papyrus scroll acquired a huge importance in the affairs of empires. If you want to run an empire extending over a large area, you need effective means of administering it. One requirement is effective communication. In a relatively static hierarchical society such as the Egyptian, where you may have been able to rely on the people in power locally knowing how they were supposed to run their domains, this may not be such a critical requirement. But if you want a dynamic, highly interactive structure, this requires systematic communications. The obvious example here is the Roman Empire.

Many other empires, both earlier and later than the Roman, failed at least in part because they did not have such systematic communications. Of course other things are also necessary, but it is hard to exaggerate the importance of this component. Furthermore, if you are dependent for this on the papyrus plant, control of the papyrus supply becomes a vital factor in the survival of your empire.

Roads

The destination of your message may be just across town, but again, if you have an empire to run, it may be days or weeks away. For a large part of our history, the best way to send anything (goods or letters) across any distance involved boat journeys. But boat journeys are slow and perilous—and they often have to go a long way round. If messengers are to carry your written message at some speed over great distances, they will need roads. Some roads are established simply by people walking them, but your budding empire may need some more reliable and extensive system. Again, the champions here are the Romans.

The Romans are famous for building roads. Straight, well-made roads ran the length and breadth of the Roman empire. For whom were they built? Partly for the soldiers or the administrators: a legion or a governor doing a turn of duty in a remote province would use the established roads where possible, though of course the soldiers at least normally had their main activities in areas not well covered by roads. They may have been built partly for the tradesmen—Rome depended very heavily on trading, and some goods were traded over large distances. But trade was primarily a private concern, and the access that the tradesmen had to roads was a by-product rather than their primary purpose.

But the main reason for the road-building activity of the Romans was for the messengers. The road network, together with the boat routes across and around the Mediterranean, formed the primary communications network of the empire.

In more recent times, for example in the Victorian era, the word 'communications' came to refer just as much to the road and rail networks as to, for example, the postal system. This is no accident. Road and rail, and the shipping lanes, were as much about communicating information as they were about moving people and goods.

The *Cursus*

Efficient empire-wide communication to serve the needs of imperial administration needs to be highly systematic. An official in Rome who wants to instruct another official in one of the far-flung provinces will need to entrust

his message to a (human) system, with the confidence that it will reach its destination. Thus was the concept of a postal system born.

Several early empires had postal systems for this purpose; these were not generally accessible to private individuals, but for the use of government only. But, once again, the Roman system introduced by the emperor Augustus was second to none. Called the *Cursus Publicus*, it relied on supplies of messengers running or riding stages and fresh horses at each stage. There were two classes of post—the normal class could be expected to cover 50 miles a day, but urgent letters could go at twice that speed. Its domain was the whole of the Roman empire, and it played a significant role in the success of that institution.

When the Roman empire fell apart, and was replaced by many local administrations, often warring petty kingdoms, both the system of roads and the postal system declined too. The kind of speed with which a Roman official could get a letter to (say) a governor in Gaul was not rivaled again until the end of the eighteenth century.

To the east, some five centuries before Augustus, the Persian emperor Cyrus had initiated a postal system called the *Chapar Khaneh*. Later, after the decline of Rome, during the (relatively) Dark Ages in Europe, a system called the *Barīd* was established in the Islamic world. An account of these systems is given by Adam Silverstein in *Postal Systems in the Pre-Modern Islamic World*.

Postal systems in the ancient world, being primarily organisations for the benefit of the rulers and the government, were closely associated with espionage—one of their main functions was to enable the rulers to discover all they thought they needed to know about what was going on in their domains.

The birth of the modern postal system

The *Cursus* was confined to government business, but in medieval times, some non-government organisations (some universities, for example) were large enough to require their own internal messenger services. The idea of an organisation devoted to providing this service to individuals and other organisations emerged gradually from this need.

The most successful of these private firms, by a long way, was Thurn und Taxis. This started as a private Italian family business, but in the fifteenth century, the family acquired from the Hapsburg emperors a licence—in effect, a state-assigned monopoly—to run all the postal services throughout the Holy Roman Empire. Thurn und Taxis held this monopoly for a little over 300 years. The family were variously ennobled by successive emperors until by the end of the seventeenth century they were princes.

They built a modern and (at its best) highly efficient postal service of a sort we might recognise today. They carried government and private letters, and had an extensive distribution system based, like the *Cursus*, on horse relays with staging posts between the major cities of the empire. It was they who, by the end of the eighteenth century, could rival or beat the kinds of mail delivery speed established by the *Cursus*.

But, again like the *Cursus*, they depended on the authority of the state they served. As stronger national governments developed in Europe, they saw a foreign-run postal service as a threat to their own control over their communications. Countries began to develop their own postal systems. Issues concerning the relation between government and private enterprise, all too familiar today, complicated the development process. On the one hand, some governments preferred a system that was run entirely for their benefit, not serving the public in any way. On the other hand, they were not too keen on any purely private postal service being outside their control. One of the concerns, which again is familiar today, was with security—just think of the horrors that might arise if conspirators were able to communicate freely by letter!

What gradually emerged as the standard approach was to have a government-owned and -run postal monopoly, offering services to the public. The postal charges were often treated by government as a form of taxation, which could be raised to pay for a war or whatever else was required.

A good example of this ambiguous relationship was the experience of William Dockwra in London in the late seventeenth century. He organised a private 'penny post' in London, which quickly became very successful. But its success alarmed the authorities, and they (almost equally quickly) took it over and merged it with the public service.

The Penny Post

Actually, one of the most significant subversive uses of the public postal system arose from the cost of sending a letter. The usual system of payment was for the sender to send the letter without payment, and for the postman to collect the required fee from the recipient on delivery. The fee could be high and quite complex, depending not only on weight but also on the distance travelled and perhaps on the route taken. But it was not hard to work out that simple messages could be coded, for example, by the way the name and address of the recipient was written on the envelope. So when the letter was delivered, the recipient could look at it and then return it to the postman, refusing to pay, on grounds of poverty or whatever—having nevertheless understood the message from the sender.

The obvious solution to this problem, from the point of view of the authorities, was to force prepayment. But it took an enlightened visionary, Rowland Hill (together with another who will reappear later in this book, Charles Babbage), to see that was only part of the solution. Prepayment would actually make the system much more efficient anyway, because delivery would not depend on the postman finding the recipient at home. Hill not only understood this, but also realised that the cost of delivering a letter depended very little on distance, and that a cheaper service would be used very much more widely. When the Penny Post, with pre-payment postage stamps, was introduced in Britain 1840, the effect on the postal service was immediate and far-reaching. It became the universal communications medium, accessible to everyone.

The Universal Postal Union

National postal organisations such as the British Post Office gradually unified and simplified their own internal services, but international mail was a different matter. In order to send an international letter, you would have to know the route and how it was going to be charged by the various carriers involved. Certain national post offices had bilateral agreements with each other, but these might involve a specific fee for each letter. A letter might have to cross several countries in the course of its journey.

All this complication was swept aside in 1874, with the Bern agreement

based on Heinrich von Stephan's proposal for a General Postal Union. This laid the foundation for what came to be called the Universal Postal Union. This was a union of national postal services, agreeing to carry each other's international mail to its destination without further charge or accounting on specific items. Initially twenty-two countries joined, but very rapidly it expanded to include practically all postal services throughout the world.

This was a truly revolutionary move, a supra-national agreement to allow a simple system of point-to-point communication across the globe. Anyone could send a letter to anyone else in the world (well, at least to an address, a location). The Universal Postal Union must be regarded as one of the great triumphs of civilisation.

The heyday of post

Universal literacy, with the help of the Penny Post and the Universal Postal Union, ushered in a golden age for postal services. Letter-writing took off as never before. Before radio, before the telephone, long before the arrival of the Internet, the world became a connected place.

From the vantage-point of the twenty-first century, when we have such a variety of ways of communicating, and when the postal service has largely degenerated into a mechanism for delivering purchased goods and spam, it is difficult to imagine the importance of post in the nineteenth and early twentieth centuries. It is also a little difficult to get a grasp of how efficient the service could be. The following letter to the editor of *The Times* of London reveals not only the efficiency (despite the author's protestations to the contrary), but also the importance attached to it:

May 25th, 1881

Sir,—I believe that the inhabitants of London are under the impression that letters posted for delivery within the metropolitan district commonly reach their destination within, at the outside, three hours of the time of postage. I myself, however, have constantly suffered from irregularities in the delivery of letters, and I have now got two instances of neglect which I should really like to have cleared up. I posted a letter in the Gray's Inn post office on Saturday, at half-past 1 o'clock, addressed to a person living close to Westminster Abbey, which was not delivered till next 9 o'clock the same evening, and I posted another letter

in the same post office, addressed to the same place, on Monday morning before 9 o'clock, which was not delivered till past 4 o'clock in the afternoon. Now, sir, why is this? If there is any good reason why letters should not be delivered in less than eight hours after their postage, let the state of the case be understood; but the belief that one can communicate with another person in two or three hours whereas in reality the time required is eight or nine, may be productive of the most disastrous consequences.

I am, Sir, your obedient servant. K.

I would not be surprised if the letterboxes which K used are still there, but if you were to post a letter nowadays, at Gray's Inn at 1.30 p.m. on a Saturday, it would not even be collected from the letterbox before Monday.

The importance of the postal system in the late 19th and early 20th century is indicated by the following statistic: at the start of the First World War, the totality of the Civil Service in Britain was approximately 168,000 people, of whom about 124,000 were employed by the Post Office. During the First World War, the postal service contributed greatly to the public perception of the war, at least for those who were in correspondence with soldiers at the front, which was very far removed from the picture provided by the news media. This sense is vividly conveyed in Vera Britain's book *Testament of Youth*. In a way, despite the inevitable delays of post in wartime, it evokes the kind of feeling of immediacy achieved by television in later conflicts such as Vietnam.

In the 1930s, the British General Post Office produced a wonderful documentary called *Night Mail*. With words by W. H. Auden and music by Benjamin Britten, this short film celebrated a mail-train journey the length of Britain, and at the same time caught the essence of the postal service, as it was seen by the public who used it.

The decline of post

Old media seldom die, but they change. A succession of developments (telegraph, telephone, email and so on) have taken their toll on the concept of a postal service. Paper documents are still important, but for different reasons than those which inspired the letter-writers and -readers of the nineteenth and twentieth centuries. No doubt there are still people in the world who

wait on the arrival of the post in the same way that K or Vera Britain did, but this particular manifestation of the global village is surely in decline.

