A vocal communication system in the Gallic War

"Clamore per agros regionesque significant" (B.G. 7,3)

Christine Hatz

Abstract

Cesar mentions twice a vocal communication system, by which news were disseminated at very high speed ("incredibili celeritate" B.G. 5,53) over the territory of the civitates of Gaul (B.G.7,3). In the case of transmission of the news concerning the massacre of Roman merchants of Cenabum to the territory of the Arverni, Cesar mentions the distance and the time the message took to be conveyed. Several approaches are suggested to try to verify these statements.
In the first place, a review of technical terms used by Cesar will give a more precise understanding of the original text. This is followed by a topographical analysis of the route mentioned by Cesar, aiming at identifying the factors which might have influenced the choice of the precise track of this communication line. An assessment of the manpower resources required for such a communication system will focus on the practical side of such a venture, as well as on its organisational aspects. Lastly, an inquiry into other antique military intelligence methods will enable us to better appreciate what role and significance such a system of vocal communication could have played in the context of pre-roman Gallic society and the Gallic War. This analysis does provide some elements of thought on the possible practical basis of such a system, namely local communication networks between a chieftain and his dependents. These local networks could - at a later stage - have been connected and extended to a supra-regional level. As the prestige of local leaders depended notably on having a large number of followers, the fact of being able to summon them quickly might also have been not only a question of rapid support in time of war, but also of prestige. This would explain the considerable ingeniousness, time and effort invested into the organisation and functioning of the system by late Celtic elite.

Zusammenfassung

Caesar erwähnt zweimal ein gallisches Rufalarm-System, bei dem Nachrichten mit grosser Geschwindigkeit („incredibili celeritate" B.G. 5,53) übermittelt wurden, und zwar über das Territorium der gallischen civitates (B.G. 7,3). In seinem Bericht über das Massaker an den römischen Händlern von Cenabum (Orléans) berichtet Caesar ebenfalls von einer schnellen Nachrichtenübermittlung von eben diesem Oppidum aus bis ins Gebiet der Arverner. In diesem Fall gibt Caesar sogar die zurückgelegte Distanz und die Dauer der Nachrichtenübermittlung an. Um die Glaubwürdigkeit von Caesars Aussagen besser einschätzen zu können, soll die Funktionsweise des Systems aus verschiedenen Perspektiven analysiert werden. Als Erstes wird das technische Vokabular, das Caesar zur Beschreibung verwendet, genauer untersucht. Darauf aufbauend folgen Überlegungen zur Auswahl der möglichen Routen, die für die Übermittlung der Nachricht von Cenabum zu den Arvernern gedient haben können. Von zentraler Bedeutung ist die Frage nach dem beträchtlichen «manpower», das ein solches System in der Praxis erforderte, und nach dem organisatorischen Aufwand eines solchen Unterfangens.
Ausserdem soll ein Einblick in weitere antike Nachrichtendienste die Möglichkeit geben, die Rolle und Bedeutung des gallischen Übermittlungssystems im Kontext der vorrömischen spätkeltischen Gesellschaft, und im Gallischen Krieg im Besonderen, besser einzuschätzen.
Die Analyse führt zur Hypothese, dass wohl kleinere, lokale Kommunikationsnetzwerke die eigentliche Grundlage des übergeordneten Nachrichtensystems bildeten. Diese könnten dazu gedient haben, die Klienten lokaler Herrscher aufzubieten. Da das Prestige keltischer Herrscher sich vornehmlich in einer zahlreichen Gefolgschaft manifestierte, ist es denkbar, dass auch das sehr rasche Erscheinen als wichtig erachtet wurde. Auf dieser Basis könnten – eventuell (nur) in Kriegszeiten – diese lokalen Kommunikationsnetzwerke zu einem überregionalen Nachrichtendienst ausgebaut worden sein.
Der Planungs- und Organisationsaufwand für ein derartiges Übermittlungs-System war ausserordentlich groß, doch die keltische Elite scheint Nutzen und Prestige eines solchen Nachrichtendienstes klar erkannt zu haben und war offenbar willens und fähig, ein entsprechendes funktionierendes System zu entwickeln und umzusetzen.

Caesar is impressed: News of his victory travelled at "incredible speed" to his trusted legate Labienus. The Rome-friendly Gallic people of the *Remi* transmitted this message through their territory in North-eastern Gaul in record speed. Let's have a closer look at Caesars words:

«Interim ad Labienum per Remos incredibili celeritate de victoria Caesaris fama perfertur, ut, cum ab hibernis Ciceronis milia passuum abesset circiter LX, eoque post horam nonam diei Caesar pervenisset, ante mediam noctem ad portas castrorum clamor oreretur,(…).» (B.G. 5,53)

"Meanwhile report of Caesar's victory was brought to Labienus with incredible speed through the agency of the Remi. In fact, though Labienus was about sixty miles away from Cicero's cantonements, and Caesar had not reached the latter until after the ninth hour, before midnight a shout arose at the gates of Labienus'camp, to signify the victory and to express the congratulations of the Remi to Labienus."

In modern terms, *fama perfertur*, the message was delivered within approximately 8 ½ hours, after covering a distance of about 88 km. News travelling at a speed of about 10 km an hour does not appear to be an incredible celerity at first sight. It is only when taking into account the practical circumstances of this transmission, that the conveying of this news can be deemed incredible: It was winter, so most of the transmission took place in darkness. We do not know how the message was conveyed, but it is clear that neither one single person on foot, nor a single messenger on horseback can travel this distance at that speed under these circumstances. The transmission must have included some kind of relay, and this relay must have been organised beforehand. A relay system must follow a predetermined route, and either available messengers and/or horses must

be posted on this route. Was this part of some kind of rapid military intelligence system of the Remi? Was this the reason why Caesar thought it worth mentioning?

Caesar's *celeritas*

Caesar was famed for his *celeritas*. Bart Danon recently made a critical quantitative analysis of this phenomenon: In the *Bellum Gallicum* there are 193 references to swiftness, 96 mentions are based on the word *celer* (Danon 2018: 25). Most mentions concern rapid movements of himself and his troops, often taking the enemy by surprise and thereby minimising the costs of a battle. But Caesar's *celeritas* goes beyond the military: It seems that Caesar worked actively and systematically on building himself a reputation of swiftness in every respect, as this self-characterisation in the seventh book of the *Bellum Gallicum* suggests. He was ready to attack the Gallic oppidum of *Noviodunum*, "when messengers came to him [Caesar] from this oppidum to plead that he would forgive them and spare their lives, in order to settle the remaining business with the swiftness (*celeritate*) with which he handled most things, he ordered that [their] weapons should be assembled, [their]horses yielded and hostages delivered." (B.G.7,12, translation Danon 2018).

Plutarch, in his biography of Caesar, gives a further vivid picture of this *celeritas*: "(…) he drove so rapidly that, on his first journey from Rome to Gaul, he reached the Rhone in seven days (…). (Plut. 17). Suetonius, in the Life of the Caesars, mentions his rapidity as well: "He covered great distances with incredible speed, making a hundred miles a day in hired carriage and with little baggage, swimming the rivers which barred his paths or crossing them on inflated skins, and very often arriving before the messengers sent to announce his coming." (Suet. I,57, in Dvornik 1974: 84)

His strategy was effective: Just some years later, Cicero would coin the term *celeritas Caesariana*, thus consolidating Caesar's reputation of swiftness for future generations (Danon 2018: 16).

It seems therefore plausible, that Caesar's interest was roused by this surprisingly fast news transmission by his Gallic allies, the Remi. This might have been the reason why, three years later, in the midst of the gruesome battles of the final war against the united Gauls under Vercingetorix, he reports an even more astonishing rapid transmission of a message in central Gaul.

The Gallic vocal communication system between *Cenabum* and the Arverni

In the winter of 52 BC, many Gallic people decide to join the general rebellion against the Roman conquerors. The Carnutes, living in the region of modern Orléans (*Cenabum*), and having been – in their view – gravely wronged by Caesar, who had one of their most respected leaders, Acco, savagely put to death, volunteer to start the war: On a certain day – the date is fixed beforehand – the Roman merchants responsible for the grain supply of the army are to be attacked and murdered.

«When the day came, the Carnutes, under the leadership of two desperate men, Cotuatus and Conconnetodumnus, rushed on a given signal on Cenabum, put to the sword the Roman citizens who had established themselves for trading purposes and plundered their goods, including Gaius Fufius Cita, a respectable Roman knight charged by Caesar with acquiring grain. Speedily (*celeriter*) the report thereof was carried to all the states of Gaul."(B.G. 7,3)

To all the states of Gaul? Is this statement realistic? How was this message transmitted? Caesar continues:

"As a matter of fact, whenever any event of greater note or importance occurs, the Gauls shout it abroad through territories and districts and then others take it up in turn and pass it on to their next neighbours; as happened on this occasion." (B.G.7,3)

Caesar is describing a far-reaching vocal communication system, based on a densely woven network of posts picking up important messages and forwarding them by voice to the next post. Over the territory of all the states of Gaul? At first sight, this appears to be rather implausible.

But Caesar gives his readers detailed information about the speed of this communication system in this specific instance:

"For the deeds done at Cenabum at sunrise were heard of before the end of the first watch in the borders of the Arverni, a distance of about one hundred and sixty miles." (B.G. 7,3). This amounts to the message covering ca. 240 km in approximately 12 hours. In this case, it is even more obvious that there had to be a relay system of some sort, one person/horse not being able to cover such a distance. Still, installing a functioning vocal communication system on such a long route would mean an extraordinary organisational achievement in pre-Roman Gaul.
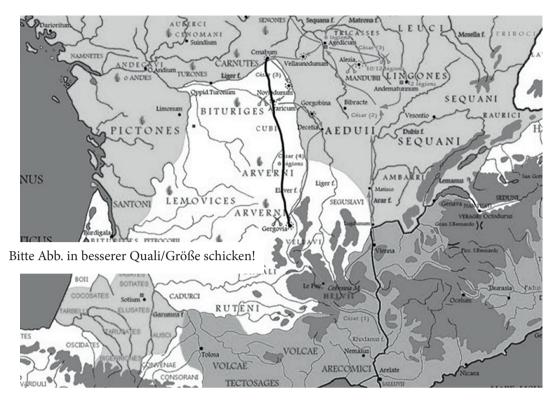
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Illustration 1: The map shows Caesar's military actions in 52 BC (in red). Addition in black: direct route Cenabum – territory of the Arverni, via Avaricum (Bourges). The other option would have been to take a more eastern route, following the rivers Loire (Liger) and Allier, an affluent of the Loire, the Allier passing close to Gergovia, capital of the Arverni. Screenshot of Map of Gaul, 52 BC, line in black added by author; https://fr.wikipedia.org/wiki/Guerre_des_Gaules#/media/Fichier:Gaule_-52.png, retrieved 16.1.2021.

THE WORDING OF THE STATEMENT

Can we trust Caesar's report? Can the analysis of the technical terms he uses give us a better understanding of his statement?

«Celeriter ad omnes Galliae civitates fama perfertur. Nam ubicumque maior atque illustrior incidit res, clamore per agros regionesque significant; hunc alii deinceps excipiunt et proximis tradunt ut tum accidit. Nam quae Cenabi oriente sole gesta essent, ante primam confectam vigiliam in finibus Arvernorum audita sunt, quod spatium est milium passuum circiter centum LX.» (BG 7,3)

The following terms describe the communications system in detail:

celeriter = speedily

fama perfertur = convey a message

clamore = alarm, shout, conveying information

significare = action of giving signals and signs

deinceps = in succession, in turn

excipere = pick up, collect

The description is clearly referring to a communication system, whereby a message is passed along a line of posts transmitting the message by voice over long distances.

In the following we shall discuss the main factors involved in the functioning of such a long-range vocal communication system, namely the choice of the routes, the range of the human voice, the manpower required and the organisational challenge of such a system.

THE ROUTE OF THE COMMUNICATION

A closer look at the region between *Cenabum* and *Gergovia* (as the probable center of the Arverni territory in the middle of 1st century BC) suggests two possible communication routes between these oppida.

One route would pass by the famous oppidum of Avaricum (modern Bourges) and then head more or less straight south to Gergovia.

In the communication and transport network in the

Late Iron Age, the fluvial routes of the Loire and the Allier played an important role (Olmer 2003: 220). Assuming the presence of different kinds of infrastructure – toll stations, ferries, bridges, settlements of all sorts, often situated at confluents – one can hypothesise the availability of some manpower at these places. There might even have been watch posts and guards stationed along these waterways, possibly even permanently.

Would overland routes have presented similar facilities? The information on this question is scarce and difficult to date. There is however evidence that the roads in Gaul were carefully and regularly measured, not in Roman miles, but in two variants of the Gallic *leuga*. The distances, usually in *leugae*, were marked in different ways, with large stones or other markers now lost. There are remnants of this system to be found, however, in toponymy, regularly spaced crossways, chapels etc. Dating this evidence of road surveying is difficult, but the measure in use – not the Roman mile – might suggest a Gallic origin (Bruant 2016). Would (some of) these points of measurement have been used as the basis for installing "heralds-watchposts" at regular distances, to be used for the system of vocal communication? This is of course pure speculation…

At this point we can therefore not draw a conclusion about which kind of routes, fluvial or overland, might have been preferred for the transmission of such messages.

The manpower of the communication system

What about the manpower needed in a vocal communication system? The human resources required for such a communication route depend basically on how far the sound of an individual human voice can travel.

The range of the human voice: heralds in Gallic troops

Volker Aschoff, an engineer by training and an expert in the history of communication has assessed the range of the human voice. He concludes that the sonority and complexity of the message transmitted is the main factor limiting the distance such a message can be conveyed by voice: If the message consists of a simple alarm call, that has been coded beforehand – let's say the word "victory" as the code for the message "the attack on *Cenabum* was successful, war has

started", then the sound of such a call can be heard to a distance of 600 to a maximum of 1000 meters, under favourable meteorological and topographical conditions (Aschoff 1989: 17). The individuals' voice must be particularly strong, as for example the voice of a herald.

Interestingly, there is evidence of the use of heralds in the Gallic troops: During the war against the *Belgae*, Caesar reports that the enemy, thinking they were in a strong position, sent heralds around his camp shouting the following proclamation: "Anyone, Gaul or Roman, who went over to them before the third hour could do so without danger: after that no opportunity." (B.G. 5, 51, translation O'Donnell 2019)

This statement is important not only because it makes clear that there were professional heralds in Gallic troops, but also because it is evidence of the use of precise timekeeping devices. In any communication system needing extended manpower, knowing the exact date and – if possible – the hour of the message transmission greatly helps making it efficient and reliable.

Following Aschoff's analysis, we can conclude: a simple alarm call could indeed have been transmitted over this distance by a minimum of 240 posts at predetermined relay stations along the route between *Cenabum* and the Arverni territory. But: Is such a high degree of manpower-organisation plausible, in a Gallic context?

Looking for a context: Rapid communication in the Near East and Greco-Roman World

In the ancient sources there is only one text to be found describing a system comparable to the one Caesar mentions: a vocal communication system in 4th century Persia. It is Diodorus Siculus who, giving a detailed account of the wars of the Diadochi following the death of Alexander the Great, makes a brief excursus on the way Persian archers were to be recruited as fast as possible:

"Although some of the Persians were distant a thirty days' journey, they all received the order on that very day, thanks to the skilful arrangement of the posts of the guard, a matter that it is not well to pass over in silence. Persia is cut by many narrow valleys and has many lookout posts that are high and close together, on which those of the inhabitants who had the loudest voices had been stationed. Since these posts were separated from each other by the distance at which a man's voice can be heard, those who

received the order passed it on in the same way to the next, and then these in turn to others until the message had been delivered at the border of the satrapy." (Diodorus, World History, 19.17)

It is not possible to assess the accuracy of the statement claiming the message was delivered "the same day" over a distance of a thirty days' journey. One day's journey, depending on the means of travel – by foot or on horseback – can mean anything between 20-60 km per day. The context of this specific communication though is clear: the aim is the rapid mobilisation of troops in war-time. Diodors statement suggest however that these posts were stationed long-term, probably serving as multifunctional watch posts.

We know nothing about how long this system remained in use. Could it have served as a model for the Gallic system? It can not be ruled out that the odd Celtic mercenary or descendent of the Celtic people who settled in Galatia might have heard about this communication system, but it would be pure conjecture to go any further in interpretative speculation. It seems very far away both in time as in space to have been used as a direct model.

There were other rapid communication systems in use in the Greco-Roman World. Fire signals, mentioned already in Babylonian and classical Greek times, were occasionally in use in most armies, in Roman troops as well, sometimes in connection with pre-established codes. Acoustic signalling with horns and other instruments in a military context was omnipresent in antique warfare – the Celtic carnyx bearing witness to similar practice in Gallic troops. But all these military signalling devices lack regularity and permanence (Aschoff 1989: 19-32). We have to look towards the sophisticated postal services in Egypt and Persia to find the concept of a regular service in time of peace, with relay posts of specialised messengers, horses, camels and carriages. Which mean of transport was chosen depended on the nature of the message (Dvornik 1974: 40-46; 49-93; Pflaum 1940: 189-209; Llewelyndid 1993; Briant 2006: 62-64).

Communication during the late Roman Republic

During the period of the late Roman Republic there was no regular way of transmitting messages on Roman territory. Written news travelled mostly by private messengers, as Ciceros correspondence shows clearly. In times of war spies, scouts, couriers and messengers were used to gather and transmit intelligence about the enemies' forces, but there was yet no regular communication service of any kind (Sheldon 2005: 120-137). It was Caesar, some years after the Gallic war, during the period of the Civil wars, who made the first move in this direction.

In his final conflict against Pompey, he won not only the battle at Pharsalus, but won "the war of rapid intelligence too. Well aware of the consequences which good or bad news from the battlefield could have in Rome, during his later campaign he organized for the first time in Roman history a regular information service by messengers on horseback posted in advance at regular distances. So it happened the timely intelligence concerning Caesar's victory in Thessaly was brought in this way to Messina in Sicily."(Dvornik 1974: 86). But this prearranged relay service remained a singular occurrence during Caesar's lifetime. It would be up to Augustus to go a step further, as his biographer Suetonius reports:"To enable what was going on in each of the provinces to be reported and known more speedily and promptly, he at first stationed young men at short intervals along the military roads, and afterwards post-chaises (carriages). The latter had seemed a more convenient arrangement, since the same man who brings the dispatches from any place can, if occasion demands, be questionned as well." (Dvornik 1974: 92). This was the humble beginning of the *cursus publicus,* which was to become the backbone of the communication system within Roman territories (Pflaum 1940: 210-245; Sheldon 2005: 143ff.; Kolb 2000: 50-70).

This brief overview of the systems in use in the middle of the 1st century BC shows that there seems to have been no communication system which could have served as a direct model for the Gallic vocal communication system as described by Caesar.

The purpose of the Gallic vocal communication system

The few sources we have, all from Caesars' *Bellum Gallicum*, show one common context: they concern messages passed on in time of war. A more specific use of this system is mentioned by Caesar when, after describing the transmission of the message from *Cenabum* to the territory of the Arverni, he adds: "There, in like fashion, Vercingetorix (…) summoned his own dependents (*convocatis suis clientibus*…) (B.G. 7,4, translation O'Donnell 2019).

This suggests that the basis or the nucleus of this

communication system might indeed have been a means of summoning the dependents of individual military leaders at a local level. Taking this line of thought one step further, one could imagine that it was the duty of military leaders to set and keep up such a system, and to assure their own system could, if necessary, be linked to the network of the neigbouring region. We know that the prestige of Gallic rulers was closely linked to the number of their followers. Being able to assemble them rapidly might have been an essential part of this prestige.

Gallic celeritas?

There is one piece of evidence where rapidity is explicitly described as holding a central role in a Gallic military context: In the winter of 54 BC, the *Treveri*, under their leader Indutiomarus, are trying to assemble other neighbouring Gallic people to launch a coordinated attack on the Roman forces. Indutiomarus "summoned an armed council. In Gallic custom, this is the start of the war, where by a general law, all armed youth assemble. The last to arrive is tortured horribly and killed in public view."(B.G. 5,56, translation O'Donnell, 2019). Andreas Hofeneder has reviewed the discussion about this statement by Caesar, stressing the sacred dimension of such an act, interpreting this as a war-sacrifice (Hofeneder 2005: 184-185). This is of course quite plausible, however there might also have been an element of competition and prestige involved: Those slow to respond to a summoning are publicly punished. If this was seen as the responsibility of the respective military leader, it would have been a matter of prestige of the leader in question to have a well-functioning communication system at his disposal, in order to summon troops as rapidly as possible.

Conclusion

In my view, the most plausible explanation for such a vocal communication system during the Gallic War is that it was a large-scale interlinked network, based on smaller networks of "heralds" organised by local chieftains. The primary use was a military one, serving to transmit important news, or to summon troops, as in the example of Vercingetorix.

Caesar's statement, that the messages were conveyed to all states of Gaul "whenever something important happens", not necessarily implying a military context, cannot be verified by the sources at our disposal.

The existence of such an original system, even if it served only in times of war, is in itself most remarkable. It shows a surprising degree of organisational sophistication in pre-Roman Gallic society. Indeed, defining the routes, manning the many posts required and coordinating the network at a local as well as at a large-scale level - possibly the whole of independent Gaul – throws a new light on the socio-political skills and the complexity of Gallic society of the middle of the 1st century BC.

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