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# Franz Joseph Gall on the “deaf and dumb” and the complexities of mind

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## ABSTRACT

Franz Joseph Gall used a broad variety of phenomena in support of his organology. Well known are his observations on anatomical features of the brain, species-specific behavioral patterns, the observation that some individuals may excel in one faculty while being mediocre in others, changes in the organs with development and aging, and how the organs associated with the faculties might be affected by diseases and acute brain lesions. We here present a widely overlooked source: his observations on individuals then classified as “deaf and dumb.” We discuss how these observations were presented by Gall in support of his organology and in his disputes with empiricists and sensationalists about the nature of mind.

## KEYWORDS

Franz Joseph Gall; organology; phrenology; “deaf and dumb”; feral children; sensualism; language learning; empiricism

## Franz Joseph Gall on the “deaf and dumb”

Franz Joseph Gall (1758–1828) is best known for his organology, his theory about a constellation of faculties together constituting the human mind, each associated with a circumscribed organ in the cerebral cortex (for a biography, see Finger and Eling 2019). In the early 1790s, he began to realize that the centuries-old view that the mind consists of the faculties of perception, reason, and memory could not be valid. It cannot explain, for instance, why a prodigy can have a seemingly inborn talent to learn and remember pieces of music but not verbal texts. Gall concluded there cannot be a single, general memory. Rather, there must be several memories, each associated with a specific faculty of mind.

What, then, are the basic faculties, those that are independent of one another? This was the main topic Gall worked on from the 1790s until the publication of his “great works,” his term for his four-volume *Anatomie et Physiologie du Système Nerveux en Général, et du Cerveau en Particulier* (Anatomy and Physiology of the Nervous System in General and the Brain in Particular; Gall and Spurzheim 1810-1819).

Gall considered observations from various domains to determine which faculties underlie behavior. His most important sources were the behavioral patterns he witnessed in humans and animals, both as species and among individuals, at various levels on the ladder of life forms. He also attempted to study anatomical features of the brain, most importantly, the cortical organs associated with the different faculties, again in the contexts of different species, but also within each group.

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When examining species-specific and individual differences, Gall took into consideration differences among races, nationalities, and localities. He also paid attention to gender differences and the ages of his subjects. He further studied the effects of brain injuries and diseases in humans, and even did some experiments on animals, although he acknowledged that it could be very difficult to determine which cerebral organs might be directly or indirectly affected by a sword wound, a cerebral hemorrhage, or even the brain damage sustained by rabbits or dogs subjected to such horrors.

Scholars analyzing Gall's theoretical views and empirical observations have long cited the many types of evidence he drew from when presenting his revolutionary doctrine. Yet one of his subgroups has gone almost ignored. Here we will present how Gall also used observations from "deaf and dumb" individuals to help him formulate and substantiate his views. We realize this is an archaic term that is now considered demeaning and derogatory. We have chosen to use it here for historical accuracy, this being the terminology used at the start of the nineteenth century.

For Gall's statements on the deaf and dumb, we turned to the 1825 revised (cheaper) edition of his 1810–1819 *Anatomie et Physiologie*—namely, his *Sur les Fonctions du Cerveau et sur Celles de Chacune de ses Parties* (On the Functions of the Brain and on Those of Each of Its Parts), which in turn was translated into English in 1835 (Gall 1822–1825, 1835). Importantly, he left almost all of the *organologie* (one of the terms he used, avoiding *phrenology*) that had been in his original set of four volumes intact, while adding some new observations, citations, and commentary to the 1825 edition, which did not include his detailed neuroanatomy (too difficult for most nonmedical readers) and the earlier 100-plate atlas.<sup>1</sup>

## First experiences

Early in his scientific quest, having earned a medical degree from Vienna, Gall was granted entrance to the city's new "psychiatric institute," the *Narrenturm*, a round, five-story fortress that was the first building in Europe for housing and treating only the insane (earlier asylums had also housed the poor, criminals, etc.; see Stohl 2000). He also went to a Viennese institution specifically taking care of deaf and dumb children. He not only visited the facility out of curiosity and to learn about behavioral peculiarities but acted as physician to that institute. As he stated in his books:

At this time I was physician to the Deaf and Dumb Institution, where pupils were received, from six to fourteen years of age, without any preliminary education. M. May, a distinguished physiologist, then director of the establishment; M. Venus, the teacher; and myself, had it in our power to make the most exact observations on the primitive moral condition of these children. Some of them were remarkable for a decided propensity for stealing; while others did not show the least inclination to it. The most of those who had stolen at first, were corrected of the vice in six weeks; while there were others, with whom we had more trouble, and some were quite incorrigible. On one of them, were several times inflicted the severest chastisements, and he was put into the house of correction; but it was all in vain. As he felt incapable of resisting temptation, he wished to learn the trade of a tailor; because, as he said, he might then indulge his inclination with impunity. (Vol. 4, p. 129)

The Deaf and Dumb Institute in Vienna, founded in 1779, was one of the earliest designed for this specific population (Fischbach 1832). The institute was founded after Emperor

Joseph II (1741–1790) met Abbé Charles Michel de l'Épée (1712–1789) in Paris. The priest had founded a school for deaf and dumb children in 1765, and he had even developed a sign language for these children. The enlightened Emperor was stimulated by what he learned during his time with the Abbé. When he left Paris he was already thinking about enacting reforms.

Joseph May (1755–1820), an Austrian pedagogue, had been working in France at this time and was looking for an opportunity to return to his motherland. When he asked Joseph II for his help, the Emperor asked him whether he would be willing to learn De l'Épée's teaching methods, hoping to set up a similar institute in Vienna. May was happy to accept the opportunity. May and priest Friedrich Storck (1742–1823) obtained the needed instructions from De l'Épée and set to work to establish such an institute for the deaf and dumb in Vienna.

The institute was first housed in the “Burger Hospital” (or public hospital). It could handle six boys and six girls. Emperor Joseph II decided that a larger building for 30 children was necessary and, in 1784, the General Seminarium at Dominicans Place was employed for this purpose (Figure 1). When Storck retired as director in 1792, May took over, holding this position until 1819, when Michael Venus (1774–1850), a teacher also mentioned by Gall, replaced him.

Fischbach (1832) devoted a section of his history of the institute to how the physicians in Vienna provided their services free of charge. Here he mentioned that “the former



**Figure 1.** The Institute for Deaf and Dumb, next to the Theresianum in what was later called the Taubstummengasse 13–17, in the center of Vienna.

physicians of the institute were the medical doctors,” and included “Joh. Jos. Gall” on his list (p. 371). Unfortunately, that is all he wrote about Gall, and calling him “Joh.” was a mistake. He went by Franz Joseph or just Joseph at this time (see Finger and Eling 2019, 5). As Gall wrote that May was the director when he saw the children at the institute, this must have been after 1792.

### Skulls of the deaf and dumb

In order to determine the location of the cerebral organs of the faculties, propensities, and instincts, Gall collected skulls and plaster casts from individuals gifted or lacking in an everyday talent or special in any other way. His collections included several items from deaf and dumb individuals. He explained:

In a few years I thus formed a collection of four hundred casts, of men of all conditions and classes, from the beggar to the prince; the deaf and the dumb; idiots, children of all ages, boys, girls, women, &c. I laid schools, houses of correction, hospitals for the insane, all of them under contributions for this object. I possessed those casts of individuals whose qualities and faculties I had already observed; in this number, there were found persons of the poorest education, as well as those educated with the greatest care. (Vol. 3, p. 115)

But although he collected a number of pieces from the deaf and dumb, he did not seem to discover special skull features that would appear time and again in this population. That is, he could not find reproducible depressions in some regions or compensatory bumps in others. Nonetheless, he did learn more about mind and brain organization and development from these individuals.

### The deaf and dumb and inborn faculties

Gall was active during a time of new-found empiricism. Along with this empirical approach, many philosophers were convinced that “everything comes from the senses.” In France, this widely held philosophy was referred to as *sensualism*. But Gall did not construe this to mean that our fundamental capacities are located in the senses. The eye is critical for vision, but conscious visual perception is a higher function that involves the cerebral cortex. The same is true of the ears, and so on.

Gall was especially interested in how sensation relates to cognition or understanding, and this is where he focused on deaf and dumb individuals, a group that seemed deficient when it came to understanding or intellect. In his books, he introduced the topic by stating, “Let us first examine what the influence of the senses can be on our moral and intellectual powers, whether Aristotle was correct in saying, ‘*Nihil est in mente quod non olim fuerit in sensu*’” (There is nothing in the mind which was not first in the senses). His paragraph heading was long but notable: “The senses and the sensations received by external impressions, cannot give truth to any ingenious aptitude, any instinct, propensity, sentiment, or talent, any moral or intellectual faculty” (Vol 1, p 106). He then proceeded to make statements on this issue for each of the senses and, after having dealt with smell and taste, he turned to hearing:

As for hearing, I have demonstrated, that we have hitherto been mistaken in attributing to this the talent for music, and to the glottis the talent for singing; that it is not the hearing, which

gives the capacity for language; that the languages, however imperfect or perfect they may be, are not the creation of the hearing but of the cerebral organization; that the irresistible and lawless acts of certain deaf and dumb persons should not be attributed to their want of hearing, but to the imbecility of their minds, &c. (Vol. 1, pp. 106–107)

In effect, Gall argued that a lack of understanding among the deaf and dumb is not caused by an impaired sense of hearing but, rather, by deficiencies or disorders of the mind. This condition was called “idiocy” or “imbecility” at this time. During the 1790s, Phillippe Pinel (1745–1826), one of the most recognized nosologists of the period and a physician whose observations Gall respected, used imbecility interchangeably with “idiotism” to indicate both an intellectual and an emotional disorder (Pinel 1800).

After Pinel, nosologies often differentiated imbecility from idiocy in terms of degree and age of onset. Idiocy was usually defined as congenital, whereas imbecility was sometimes congenital and sometimes acquired (De Sanctis 1905). In an essay on the deaf and dumb that was later incorporated into the 1824, fourth edition of the *Encyclopedia Britannica*, British physician Peter Mark Roget (1779–1869) maintained: “All who are deaf from birth must necessarily be dumb; that is, they must be incapable of using language, of the sound of which they have never had the perception, and which they consequently could never attempt to imitate” (Roget 1824, 467). Roget’s view was clearly dependent on the empiricist philosophy that Gall forcefully rejected.

### The discovery of the faculty of imitation

At this time, it was common for a physician to discuss individual cases. Gall did this with deaf and dumb individuals, reporting several such cases in his books. The following probably took place while Gall was still in Vienna, acting as physician in the Institute for the Deaf and Dumb:

When I was talking with one of my friends, respecting the forms of the head, he assured me, that his own had a very peculiar one. He then directed my hand to the anterior superior part of his head; I found this region considerably bulging; and behind the protuberance, a depression, a cavity, which descended on each side, towards the ear. At this period, I had not observed this conformation. This man had a peculiar talent for imitation. He imitated in so striking a manner the gait, the gestures, the sound of the voice, &c., that the person was immediately recognised. I hastened to the institution for the deaf and dumb, to examine the head of the pupil Casteigner, who had been received into the establishment six weeks previous, and who, from the first, had fixed our attention by his prodigious talent for imitation. (Vol. 5, p. 201)

This citation forms the beginning of Gall’s section on the history of the discovery of *Faculty XXV: Faculty of Imitation, Mimicry*. Gall now had an opportunity to determine the localization of another faculty of mind, one for imitation. But did Casteigner’s skull show the same characteristics as Gall’s friend’s? Was there a bulging of the anterior superior part of the forehead? “To my great astonishment,” Gall wrote, “I found in him the superior anterior part of the head, as prominent as in my friend Annibal” (Vol. 5, p. 201). Thus, the deaf and dumb pupil Casteigner played a critical role for the determination of one of Gall’s faculties, although not one unique to deaf and dumb individuals. In this context, it should be emphasized that Casteigner’s capacity for imitation was not interpreted as a symptom of some brain disease.



## Loss of control by higher faculties

Some of Gall's cases suggested that deviant, incorrigible behavior might be due to the inability of higher faculties to exert themselves over lower propensities and instincts. Gall assumed that faculties can interact—in fact, that higher-order thinking and behaving are rarely the result of a single faculty. Importantly, he did not conceive of a controlling agent, as many current neuroscientists do when they mention some sort of a central executive or working memory.

In the following citation, Gall mentioned two individuals. The first was a 12-year-old boy he had met in Berne. This must have been in August 1807, when he went to Switzerland at the end of his tour through Germany and neighboring countries, before heading to Paris (Finger and Eling 2019). His second case concerned “the obstinate robber Fesselmayer,” whom he had observed in Haina (Kloster Haina), approximately 40 kilometers northeast of the German city of Marburg. Only his second case was deaf and dumb, and he associated his condition with imbecility.

We saw in the prison of Berne, a boy of twelve years, ill organized and rickety, who could never prevent himself from stealing; with his own pockets full of bread, he still took that of others. At Haina, the overseers gave us a long account of an obstinate robber, named Fesselmayer, whom no corporal punishment could correct. In the prison he stole every thing he saw, and they had put on his arm a card which served as a mark of disgrace, warning others not to trust him. Before seeing him, we anticipated what his organization must be, and our expectation was confirmed at the very first glance. He appeared about sixteen years of age, though in fact he was twenty-six. His head was round, and about the size of a child of one year. This individual was also deaf and dumb, which often happens in cases of mental imbecility. (Vol. 1, p. 318)

Gall referred to this case a second time in the section titled “Natural history of the propensity to theft in diseases, with remarkable weakness of understanding” (Vol. 4, p. 139). Here Gall also presented a case he had seen in a prison in Berlin (Stadt-Vogtey). Among the boys who were presented to him, he noticed one deaf and dumb boy, who he suggested should never be let free, “because he would not be restrained from a continuance of his robberies” (Vol. 4, p. 137).

A “young man, fifteen years old, half imbecile and incorrigible, who died in Vienna's house of correction” (Vol. 4, p. 139) also showed Gall that some propensities may be pervasive to the point that they are incorrigible. He expressed this thought as follows:

I have already made evident, that we ought to consider man in two points of view; first, as having qualities common with animals; that is to say, those of an inferior order; then, as being endowed with the character of humanity, or with qualities of a superior order. I have also shown that man, in virtue of his superior qualities, is capable of subduing and directing his propensities of an inferior order. But, if the qualities of a superior order are controlled in an extraordinary manner, to such a degree that their free action is prevented, while those of the inferior order, on the contrary, are active, then the animal part of the man predominates exclusively, and the flesh, or the brutal desires, hold in subjection the spirit, or the dispositions of the superior qualities, which are hardly developed. With such an organization for the functions of the soul, which belong to a superior order, the same happens which takes place in regard to each organ whose development is defective; that is, there results a relative imbecility, and, in consequence, the incapability of acting morally; while the propensities of an inferior order act with uncontrolled energy. (Vol. 4, pp. 137–138)

To summarize, if the moral and cognitive capacities are limited, an individual will be dominated by lower tendencies and, should this be the case, no improvement in behavior can be expected. For those deaf and dumb individuals displaying “imbecility,” Gall felt forced to conclude that there was little chance of improvement.

### The wild boy (man) from Aveyron

A case mentioned several times in Gall’s works is the well-known “*Sauvage d’Aveyron*.” He brought “the savage” up in Volume 2 (Section III), when dealing with the plurality of intellectual and moral faculties. Having discussed individuals who behave normally in many ways, he was now ready to discuss in greater detail individuals with limited cognitive capacities, writing, “Even in congenital idiocy, all the moral qualities and intellectual faculties are not paralyzed to the same extent,” and, “In the majority of cases, as I have many times remarked, some of the faculties still enjoy a considerable degree of activity” (Vol 2., p. 289). For instance, he had seen two idiotic girls in Paris who sang well, understood what they were singing, and remembered songs for long periods of time.

And here he introduced the so-called wild boy or man of Aveyron:

The wild man of Aveyron, so called, placed in the institution of the deaf and dumb at Paris, exhibits a love of order which rises even to a passion, although all his faculties are extremely limited. If the most trifling article, a brush, for instance, be displaced, he immediately runs and replaces it. Pinel relates a very similar case. (Vol. 2, p. 289)

Victor (of Aveyron; ca 1788–1828; [Figure 2](#)) was a feral child. According to Paris physician Jean-Marc Gaspard Itard (1775–1838), his French parents neglected him and, from about the age of 4, he had, in fact, lived in the woods (Itard 1801, 1802). When captured, he managed to escape and then returned to the woods. He finally emerged in the small village of Saint-Sernin-sur-Rance and was subsequently sent to the Institut Nationale des Sourds-Muets, a facility for deaf-mutes, even though he might not have been deaf. Itard observed and worked with him for some five years, trying to teach him social manners and language, but came to the conclusion that the boy could never learn to speak.

Gall did not mention Itard by name, although he visited the institute and had a special interest in the case. Then again, Gall was often stingy in giving credit to others. French psychiatrist and reformer Philippe Pinel, cited in the quote above, was a notable exception. Gall reported that the “wild man” had a well or perhaps even overly developed “love of order,” whereas many of his other faculties were underdeveloped.

Gall raised the following question: “Does social life give rise to factitious qualities or faculties?” (Vol. 1, p. 161). Man, like many species of animals, is a social organism, and some authors have argued that these propensities and tendencies are learned. Quoting Gall:

But some think to prove that man is born without propensities and without faculties, and that he acquires these faculties merely by social life and by education; by citing the example of some individuals found astray in the woods, who, having received no education, have all the brutality of animals, and appear to be not only deprived of human faculties, but even of those of the least intelligent animals. (Vol. 1, p. 164)

Gall was unwilling to accept this conclusion. He pointed out that in most wild children brain organization is defective, and that many have heads that are too small or too large due to hydrocephalus and other disorders. “Ordinarily miserable creatures, of imperfect





**Figure 2.** Victor's portrait from the front cover of the report by Itard (1801).

organization” is one of the ways he described these children (Vol. 1, p. 164). Not only can they be a real burden to a family, but some poorly educated, lower-class people regarded them as bewitched, which is why some were abandoned in the woods.

Gall now elaborated on the behavioral and mental characteristics, and the shape of the head of the savage of Aveyron:

The savage of Aveyron, placed in the deaf and dumb institution at Paris, is not different from those of whom I have just spoken. He is weak-minded to a great degree; his forehead is very little enlarged laterally, and very much compressed from above downward; his eyes are small and greatly sunken, his cerebellum [where Gall housed the organ for reproductive instinct] little developed. We were not able to convince ourselves that he had the sense of hearing; for, they could not in our presence render him attentive, either by calling him nor by sounding a glass behind his ears. His mode of existence is tranquil; his attitude and manner of sitting are decent; it is only remarked, that he is constantly balancing the upper part of his body and his head; he salutes by inclining his body, to the persons who arrive, and manifests his satisfaction when they depart. The sexual propensity does not seem to be active in him. He knows a few letters, and even points to the objects which the letters designate. In other respects, his favorite occupation is to restore to their former place any articles which have been displaced. Such is the result of the hopes which were formed of him, the efforts which have been made, and the patience and mildness which a benevolent woman has shown towards him. We may pronounce, with confidence, that these labors will never be crowned with any better success. The wild man found in the forests of Lithuania, who is cited by many authors as an example of the powerful influence of education, was certainly a similar being. (Vol. 1, pp. 165–166)

This quote shows that Gall had examined the boy. Although he mentioned the features of his skull, Gall did not associate them with specific behavioral propensities. But what seemed clear to him was that the boy's highest mental capacities were very limited. Consequently, and given his earlier experience with imbeciles, Gall did not believe that educational programs would prove worthwhile in his case.

But who was the wild man found in the forests of Lithuania, who Gall mentioned at the end of his quoted paragraph?<sup>2</sup> There was a report circulating in France at the time about a boy who was eight or nine years old when he was “discovered” in 1661. Gall did not give a source, but he could have learned of this case from an article in Louis Moréri's (1643–1680; 1674) *Le Grand Dictionnaire Historique*. Moréri's one-volume edition of 1674 and posthumous two-volume edition of 1681 were expanded by others after his death, and they were often cited by physicians and philosophers interested in feral children. In this source, the boy was said to live in the forests with a group of bears, and for this reason he was called Joseph Ursin (for bear). After Joseph was captured, efforts were made to teach him normal human activities with little success.

This description is vague, and it is not clear what to believe from it (Benzaquén 2006). At the time, a number of cases of wild children were reported, and some found their way into the popular imagination and literature. In particular in France, Joseph's story was repeated many times and, as we have seen, it reached Gall, who doubted that the boy had been or ever could have been successfully cultivated back into civilization.

Returning to the “savage of Aveyron,” Gall gave serious thought to what his and related cases revealed about the faculty he would call the “sense of locality”:

The sense of locality, making known the relations of space, I have been inclined to think that it might also be the sense of taste, of symmetry, and of order. It is certain that some persons are destitute of all spirit of order; while others, from their infancy, are pained at the sight of the slightest irregularity in the furniture, tables, &c. This sentiment sometimes amounts to a passion, even in idiots. I have already mentioned the *soi-disant* savage of Aveyron, in the Institution for the Deaf and Dumb at Paris, and I know many similar cases. (Vol. 4, p. 283)

This quote mentioning the deaf and dumb shows how Gall went about determining the nature of a faculty and a name for it. It might remind us of how Louis Leon Thurstone (1887–1955), Joy Paul Guilford (1897–1987), and other twentieth-century scientists tried to identify faculties that could account for intelligence with their test batteries.

## Words, language, and God

Deaf and dumb individuals, as shown above, attracted the attention of philosophers and scientists interested in determining which aspects of mind might be inborn as contrasted with learned. Language played a special role in these disputes and in debates about whether we are unique. Hence, it is not surprising to find parts of these discussions in Gall's works.

Under “Of the Functions of the Senses in General,” Gall began to address these issues, writing:

But, no impression from without, no irritation from within, can become a sensation or an idea, without the concurrence of the brain. The faculty of perceiving impressions, of retaining and comparing ideas, and making application of them, is by no means in proportion to the senses either in men or animals, as is proved by the example of idiots and simpletons. (Vol. 1, p. 128)

Gall now brought up an argument formulated by French philosopher Claude Adrien Helvetius (1715–1771), who maintained, “In whatever manner we inquire of experience, she always answers, that the greater or less superiority of mind, is independent of the greater or less perfection of the organs of the senses” (Vol. 1, p. 129).

And Gall then moved on to the issue of whether words always first reflect some external observation and, by analogy, can be used to describe an abstract event. As put by Gall, “Who, then, will dare assert that the expressions, *strain, cold, warm, chill, palpitation, trembling, &c.*, have been designed to designate rather the qualities of external things, than those of internal sensations?” (Vol. 1, p. 130).

Gall’s contention that language likely does not, in fact, originate from sensory experiences became even more compelling when he mentioned categories of words that are neither nouns nor verbs, And here he again turned to the deaf and dumb, bringing them into the picture he was painting.

Whence come the words which do not precisely designate determinate ideas, but simply the mode of thinking; the prepositions, conjunctions, interjections, adverbs of interrogation and exclamation, &c, such as *hut, and, yet, notwithstanding, for, if, nevertheless, consequently, also, then, thus, alas, yes, no, &c.*?

Do not the deaf and dumb, who possess reason, but who are deprived of the faculty of expressing themselves by articulate language, depict their internal sensations by gestures, which absolutely have nothing in common with the external world? If all our ideas come from the senses, what becomes of the general and purely intellectual ideas, whose signification is wholly independent of the material world? For example, “there is no effect without a cause;” “nothing can spring from nothing;” “matter can neither be increased or diminished;” “a quality, contrary to a subject, cannot belong to it;” “a thing cannot exist and not exist, at the same time.” (Vol. 1, pp. 130–131)

As can be imagined, the most abstract idea in this philosophical dispute, especially during the 1700s and early 1800s, was the concept of God. How could an empiricist explain the experience of God? Is such a person forced to reject the notion of God? Toward the end of his books, Gall discussed the “Natural History of Man, in Relation to his Belief in God and his Propensity to Religion.” There he explained:

Every where and in all ages, man, urged by the feeling of his dependence upon every thing around him, is forced continually to acknowledge the limits of his strength, and to confess to himself, that his fate is controlled by a superior power. Hence the unanimous consent of all nations to adore a Supreme Being. (Vol. 5, p. 218)

And he continued:

Such then is the sense of the Divinity, that there is not a single nation, however barbarous, however destitute of laws or of morals, it may be, which does not believe, that there are Gods. . . . Men always have been led by an instinct, by a secret impulse, to acknowledge an omnipotent Being. (Vol. 5, p. 219)

Thus, Gall argued that, at all times and all over the world, people have acknowledged a Supreme Being and have engaged in a religious worship. He cited examples and involved the deaf and dumb in his arguments:

It is still objected, that ideas relative to God and religion, never arise among the deaf and dumb; and hence it is concluded, that there is not in man any natural disposition to these ideas. But

can it be believed, that the man of the most cultivated mind could arrive at those ideas of God and religion, which we have, if he had not been brought up in these ideas? The faith of sectarians is the work of education, of arbitrary instruction, and the ideas, which the philosopher forms of God, are the fruit of the most elevated abstractions. We cannot expect either the one or the other from a deaf and dumb man, whose education cannot have been directed towards this point; but from what we see all rude people do, we might divine what the deaf and dumb would do, if living together in tribes; for, the want of hearing does not prevent the deaf and dumb from forming to themselves, the same idea of the external world, which other men form of it, and from drawing the same deductions from the events, which pass under their eyes. (Vol. 5, p. 225)

It is interesting to see how Gall discussed the notion of God, given that he was branded a materialist and a heretic. Of course, he repeatedly denied such charges, claiming, “*Dieu et cerveau, rien que Dieu et cerveau*” [God and brain, nothing else but God and brain]. True, he was not a deeply religious, church-going man. But he never rejected the idea of God. As he expressed it in his books, which were largely devoid of metaphysics, nature’s wonderful architecture, with organisms perfectly designed to survive in their habitats, could only be the work of our Creator, of God (e.g., Vol. 4, p. 224).

Man would appear to be the only species capable of true, spoken language. But underlying spoken language is another form of communication, a “language of action.” Here, Gall pointed specifically to the exchange of ideas between deaf and dumb individuals. They may lack language but they can nevertheless exchange ideas and feelings. Consequently, he argued:

If this language is not as generally perfect, as it might be, it is because we have greatly neglected it; it is too easily replaced by the language of words. But observe the deaf and dumb, before they have received any instruction; the exactitude and the readiness, with which they communicate to each other the emotions of their souls, feelings, sentiments, thoughts, and their intentions, will prove to you, that the language of action has many advantages over spoken languages. Do we not daily see, that numerous collections of people interpret without mistake the pantomimes of our plays? (Vol. 5. p. 296)

Thus, Gall contended that presumably imbecilic individuals could still communicate, even if they lacked or had only minimal verbal language. But putting this thought in context, it must be remembered that there were no strict criteria for labeling people as deaf and dumb at this time, making this literature unusually challenging for historians hoping to decipher it.

## Special institutions

Gall attempted to develop a theoretical framework that would encompass all kinds of behaviors: taking care of the young, food preferences, sense of color, music, spatial orientation, humor, and more. Each of the faculties he settled on could be well developed, average, or poorly developed from one individual to the next. What others might consider abnormal or deviant was, for Gall, a consequence of one or more extremely developed or underdeveloped faculties or conditions (e.g., disease, religious study) that could cause extreme changes in the activity of specific faculties. In this context, and as noted earlier, he recognized that if the superior faculties were too weak to control our animal tendencies, this could result in conditions that could be disruptive to the individual, as well as to society.

Gall's approach to psychiatric patients (and criminals) was more humane than that of many of his contemporaries (Finger and Eling 2019, 363–390). This humane approach extended to the deaf and dumb. He favored special institutes for caring for them, institutes that might also be centers for learning more about what they might or might not achieve under various conditions:

To soften brutal passions, and to dispose the people to honest enjoyments, moral, religious, and civil instruction will be imperative on all classes; even the malefactor will be judged worthy of compassion. Every where we shall see the institutions of benevolence multiplied; hospitals for the sick, for the insane, *for the deaf and dumb*, the blind, the incurable, old men, invalids, &c. The brothers and sisters of mercy will have the first claim to public esteem. We shall see asylums formed for lying-in women, for foundlings and orphans. Every where schools, academies, universities, museums, libraries will foster the arts, sciences, &c., for the purpose of increasing the happiness and ennobling the enjoyments of men. (Vol. 5, p. 166; italics added)

## Conclusions

Gall was interested in studying the deaf and dumb when he began to construct his doctrine, and he never lost this interest. This is understandable, because the deaf and dumb represented an extreme of society. Much like criminals or great musicians, he believed they could shed light on the faculties of mind and the organization of the brain. Gall alluded to what he had gleaned from them when discussing the plurality of faculties, individual faculties, and the effects of the loss of superior faculties. He also pointed to them when discussing nature vs. nurture, the issue of whether all thinking must be based on sensations, and the question of whether important elements of language and speech could develop without the sense of hearing.

He pressed for specialized institutions that would be dedicated to the care and study of the deaf and dumb, although, unlike his novel *organologie*, which linked the mind and brain together in decidedly new ways, this was not a movement he initiated. But, although he suggested humanitarian reforms, he was not optimistic about making major strides with the majority of these children and adults, because he believed the deaf and dumb typically were severely impaired intellectually.

Gall collected skulls and plaster casts of interesting people and, in addition to his large book collection, they served as a sort of library for his research on the fundamental faculties of mind and their associated parts of the brain. He did have skulls and head casts from deaf and dumb individuals in his collections. Some seemed to suffer from hydrocephalus. Yet he encountered considerable variability within this group and was never able to find a reliable set of features characterizing the skulls of deaf and dumb children and adults.

What caught his attention, however, was how some deaf and dumb people could differ from others by displaying one or more other notable traits, making these individuals perfect candidates for his research program. In this context, he wrote about one deaf and dumb boy with a passion for order, noting that his other abilities were very limited. Similarly, he was interested in how well the sense of locality seemed to be developed in some deaf and dumb individuals, a particularly important faculty of mind for the “savages” struggling to survive in the woods.

Taken together, Gall's interests in the deaf and dumb shed considerable light on the organization of the mind and its dependence on the brain. And for historians, they provide a means to see how Gall was constructing and defending his ideas, and to appreciate more fully how he saw less fortunate humankind in natural ways.

## Notes

1. When we compared the English translation to the French, we found the translation to be of high quality, with the translators remaining faithful to the original (see Finger and Eling 2019).
2. We thank Egle Sakalauskaite for her help in tracing reports on this Lithuanian wild child.

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No potential conflict of interest was reported by the authors.

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