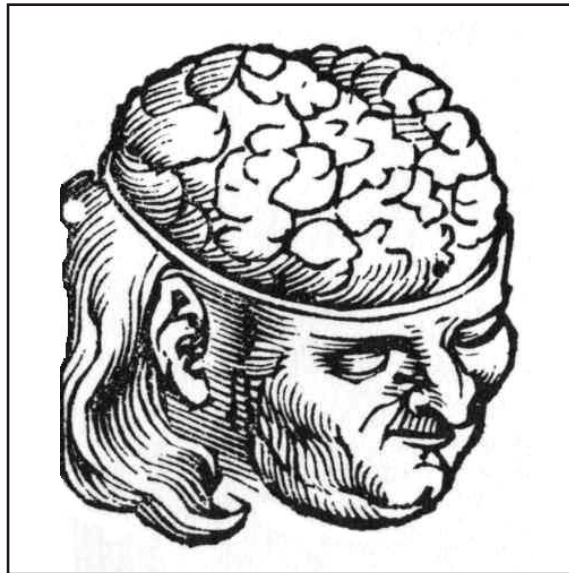




Brain: Etymology and Comparative Linguistics

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Georg W. Kreutzberg received his MD from the University of Freiburg, Germany, in 1961 and his PhD in neuropathology, from the Technical University of Munich Medical School, in 1971. He was director at the Max Planck Institute of Neurobiology (MPIN) in Martinsried and head of the Department of Neuromorphology from 1977 to 2000. Since then he has continued to follow varied scientific interests at the MPIN after transferring to emeritus status in 2000.



**The first realistic depiction of the human brain
from: Feldbuch der Wundarzney by Hans von Gersdorff (1517)
woodcut illustration by Johann Ulrich Wechtlin (ca. 1480-1526)**

Introduction

What is the origin of the noun “brain”, a word used to name the most complex organ in the universe of living objects? The New Oxford Dictionary of English (1998) defines brain as “an organ of soft nervous tissue contained in the skull of vertebrates, functioning as the coordinating centre of sensation and intellectual and nervous activity”. As early as 500 BC Alkmaion of Kroton, based on anatomical evidence, proposed that the brain was essential for perception, (Doty, 2007). This important early insight did not, however, influence the etymology of words subsequently used to refer to the organ of thinking.

In the search for the origin of the word “brain” we encounter interesting relationships to other Indo-European languages. With regard to its meaning, the common denominator is the anatomy of the skull.



Editor's Column

Once again, it is almost time for many of us Neuroscientists to attend the Annual Society for Neuroscience Convention. San Diego

is always a wonderful place for a convention, since the weather is most usually very pleasant and there is so much to do. As always, the David Kopf Instrument representatives will be greeting everyone at their booth 1314. The Kopf booth is prominently located along the left main entrance corridor of the exhibit hall. We look forward to seeing you at the booth featuring the largest display of precision stereotaxic and ancillary equipment in the world. Stop by to see the latest innovations in the stereotaxic field.

I will be there for most of the convention and would like to talk to anyone who would be interested in authoring an article for the *Carrier*. Over the 36 years of its existence, the *Carrier* has published an amazing variety of articles on many topics of interest to the scientific community. We are grateful to David Kopf Instruments for continued sponsorship of the *Carrier*.

Of special interest this year is the David Kopf Lecture on Neuroethics. This outstanding lecture series is sponsored by the company in memory of David Kopf. This year's lecture is being given by Martha J. Farah, Ph.D. from the University of Pennsylvania. She will be speaking on "Twenty-First Century Neuroscience: From the Lab and Clinic to the Home, Office and School." The lecture will be on Monday, Nov. 5 at 10 am in Ballroom 20. She will be addressing issues of translating knowledge gained about brain function to the lives of all of us. This will be an outstanding lecture.

This issue of the *Carrier* is a quite unusual one. Written by Professor Georg W. Kreutzberg, MD, it traces the origins of the word "brain" in many languages. Dr. Kreutzberg has had a long and distinguished career in the neurosciences and is truly an accomplished scholar. We met at the last meeting of the Society for the History of Neuroscience in Los Angeles and had a wonderful time discussing the history of the field. I know you will enjoy his essay. By the way, the Society for the History of Neuroscience is a great organization. You should join if you are at all interested in the history of our field. They have an annual meeting and a journal. For more information on the society, contact Russell Johnson, Ph.D. at rjohnson@library.ucla.edu.

Here in Florida, we have thus far escaped any hurricane activity or even a hurricane scare this year (so far). We are all hoping that this will be a quiet year, as was last year, for us. Of course, we do not want anyone else to have hurricanes either. It is interesting that all the storms so far have gone way south of Florida. Perhaps we could get them all to stay out in the Atlantic. My wife and I have looked over our storm supplies and have hopes that we will not have to exist for several days on mac and cheese.

I look forward to seeing you at the Neuroscience meeting. Please stop by the Kopf booth to say hello.

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The even older Indo-Germanic root supposedly is mregh or mrogh. The silent consonant “m” becomes replaced by a soft “b” and mregh becomes bregh (Kluge, 1913).

An anatomical designation is also the origin of the word for brain in High German, Dutch and Nordic languages, e.g. Gehirn or Hirn, “hersenen” (Dutch) or “hjärna” (Swedish). This word stem goes back to the old High German “hirni”, which means head, apex or the uppermost part of the skull of animals, and is also equated in many mammals with “horns”, in gothic “haurn”, Latin “cornu”, close to the “cerebrum”, Old Greek “keras”, “kara” for head and “kranion” for skull, cranium in English. The Indo-European stem is “ker” and the original Sanskrit word for head “sirsa” or “sruga”.



**CERNUNNOS: the Celtic “Anthered-God”
here depicted in the exterior relief on the silver “Gundestrup cauldron”,
(Denmark) dating from about the 2nd century BC.**

Classical Greek precisely describes the brain as “the contents of the skull”, i.e. as “encephalon”, a noun that has survived more than two thousand years and is still used in medical terminology. Similar to the Greeks the Slavic languages designate the contents of the skull as marrow; in Russian “Мозг”, in Czechoslovakian “mozek” from the Sanskrit “maïian” or “masq”.

The German language uses the term “Rückenmark” (marrow) for the spinal cord, a designation that was criticized by Jakob Rüff as early as 1581 in page 23 of his “Hebammenbuch” (midwifery book), as follows:

“Next to the brain arises the marrow of the backbone which is almost of the same nature as the brain; therefore it is inappropriate to distinguish it as marrow”.

DEUTSCHES
W Ö R T E R B U C H

VON

JACOB GRIMM UND WILHELM GRIMM.



VIERTEN BANDES ERSTE ABTHEILUNG
ZWEITER THEIL.
GEFOPPE—GETREIBS.

Bearbeitet von RUDOLF HILDEBRAND und HERMANN WUNDERLICH.

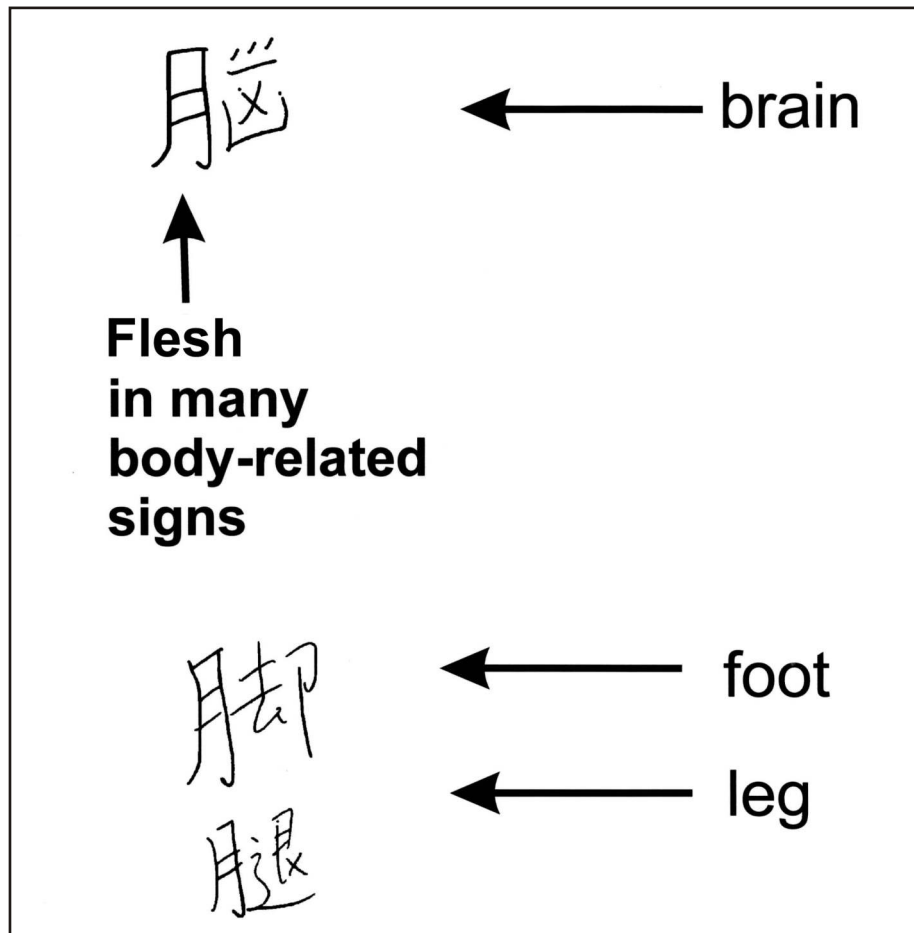
LEIPZIG
VERLAG VON S. HIRZEL
1897.

**Title page from a volume of the Grimm brothers' etymological dictionary
The angel-held inscription reads: "In the Beginning was the Word".**

Indo-European Languages

From etymological dictionaries, such as the great 32-volume work assembled in the 19th century by the "brothers Grimm" we find that the modern word "brain" is derived from the Old English "braegen", which is the word that still exists in other western Germanic languages, e.g. "brein" in Danish and Friesian. In the North German local dialects the term "bregen" is used, but only in the butcher's vocabulary for designating the brains of slaughtered animals. This edible material has been used as a component of sausages known as "Bregenwurst", e.g. in Hannover, the capital of Lower Saxony. The Old English "braegen", a term derived from the Old High German "bregan" or "bragma", has striking similarities to the Old Greek "brechmos" (βρεχμός), meaning the front part of the head or, in medical anatomy, the point of junction of the coronal and the sagittal sutures of the skull.

Sinoxenic Languages



The Chinese pictogram (logogram) depicting “Brain” is assembled from several component pictograms

Not too remote from the Slavic concept of the brain as the “marrow contents of the skull” is the Chinese version. Here, the logogram representing brain can be analysed into its pictographic components as follows:

The ladder-like component to the left appears in many body-related signs which signify “flesh”, (as in foot and leg).

The box-like component below on the right containing an X-cross represents “contents” and the three small strokes above it signify “hair”.

We may thus freely interpret the entire Chinese pictogram as “the fleshy contents of the skull”.

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