minds to name so as to recognize anything familiar in these strange objects. Among the nebulae, astestruck astronomers claimed to have seen a cat’s face, human profiles, cotton fluff, sea monsters, dumplings, a crab, a horsehoe or the Greek letter omega, comets, cirrus clouds, jewels, and many other gebale qualities. (Fig. on p. 153) These episodes are certainly reminiscent of Leonardo’s recommendation to artists, in his Treatise on Painting, that staring at clouds is a creative source of inspiration. And if Smith is to be taken seriously, these metaphors or imagery were not simply used as labels to (re-)identify objects (not unlike the case of stellar constellations), but to ease or abate the wonder associated with their breathtaking observation. It was appropriately in the presence of such inspirational sentiments as exclaimed by Lord Rosse and Sir George Airy, while making observations of some newly discovered spiral nebulae at the giant telescope, that Sir William Rowan Hamilton (Ireland’s Astronomer Royal), seated at the top observing gallery of Rosse’s telescope, composed sonnets to the heavens.

Some metaphor or analogies were scientifically productive as well. The Nebular Hypothesis was suggested to William Herschel on the basis of his natural historical approach to celestial objects, and on the analogy, in particular, to a continuous development indicated by a specific observable stage of a planet, tree or person; like geological structures, a nebula’s past series of developments may be properly inferred from its present appearance. When Rosse discovered a nebula in the shape of a spiral in 1845, analogies such as Whewell’s ‘whirlpools’ or Descartes’ vortices were productive in coming to see such objects as rotating even though they were never actually seen in motion by any observer. Other analogies such as the ‘scrolls’ or ‘small-shells’ modeled the spiral nebulae differently, suggesting a more stable configuration. One commentator went as far as to propose that the ‘physiognomy’ of the spiral nebulae might be explicable if they were modeled after large windmills with engine-driven sails moving against the wind and seen at a distance.

Nebulae were therefore read as sky-hieroglyphs that not only indicated meanings, in the form of metaphor or analogy, but also tied their being to a history of becoming. Readings of this sort were in essence the central aim of the so-called projects of ‘the natural history of the heavens’, ‘the construction of the heavens’, and ‘the architecture of the heavens’. It is significant to note, then, that it was exactly such a treatment of the nebulae that the celebrated 19th-century German architect Gottfried Semper used as a suitable analogy for a new perception of art history as ‘becoming.’ Art history was to be conceived along the lines of the natural history of the nebulae, and like the latter, might be treated as ‘signs of the world of art passing into the formless and at the same time suggesting the phase of a new formation in the making.’

Omar W. Nasis

**Flause**


Hunger

Is hunger epigeic or emotional? Does the body self-regulate? Do environmental signals stimulate internal sensations, or does sensation come first? Should one trust the stomach or the mind? Is hunger rational or capricious, to be welcomed or feared?

Hunger is what the stomach speaks. A Galenic popular medical handbook in the late 17th century advised its readers, 

Quand ton estomach le demande
Donnez lui vin, & pain & viande.
Mais lors qu'il n'a ny solf ny pain,
Ne le donne ny vin, ny pain.1

Better trust the stomach, thought many in the 18th century, rather than the faculties of intellect, reason and desire. The stomach walls form a natural limit to consumption. «The narrow capacity of the human stomach,» wrote Adam Smith in The Wealth of Nations (1776), is the means by which «the desire of food is limited in every man.»2 The stomach, unlike the intellect, is impervious to the call of luxury. Faculties of reason could too easily be swayed by social distinction, habit, pleasure. The sphere of reason contains the appetites, which should be kept rigorously under control. Thus the parasitological doctor Samuel Tissot set the rule in his Acvis au peuple sur sa soif (1782), «to eat only from hunger and never by reason.» The strict separation of stomach and mind also served to preserve a hierarchy of status and function within the body. The base operation of digestion, if properly self-regulated, would not interfere with the higher functions of reason. An analogous wish to contain appetite within the physical limits of the stomach may be seen today in bariatric surgery, the physical girding of the stomach’s size.

A neat division of stomach and mind, hunger and intellect, did not survive the French Revolution. The cry, «we are hungry», resounded at bread riots, grilles, and revolutionary actions. Rumors of «famine plots», schemes by aristocrats and merchants to starve the poor, focused great political energy. Cabanis’s On the Relations between the Physical and Mental Aspects of Man (1802) gave a physiological explanation for the social life of hunger. Cabanis’s sensationalism accorded hunger a primary place in the bodily order. Physiological needs, such as sensations of hunger, thirst, etc., propel man to act and to join in society. Hunger drives men to associate — whereby new needs are stimulated. All our actions and relations may be traced to some physiological explanation. Feelings of hunger express those needs. Hunger and appetite are socializing sensations, the basis of social association and distinction.

In the era of industrialization hunger appeared as a natural basis of the social division of labor. Hunger made one work. «Nature, in its admirable conservatism, wishes to oblige man — who is naturally opposed to work — to provide for his subsistence, by enticing him with pleasant sensations of taste, but also by punishing his laziness with the unbearable, powerful and painful sensation of hunger. This need is thus one of life’s guaranties...»3 The Reverend Thomas Malthus is the most widely known proponent of the view that enforces social organization to subsistence and scarcity. However, such views were not restricted to social conservatives; socialists Pierre Leroux and Pierre Poujoulat similarly derived the need to work from the biological law of hunger.

But an excess of hunger could stimulate anger, violence, crime. Excessive hunger appeared as an inexorable force, which pushed its victims to reject family ties and disrupt social hierarchies. Popular texts from medical guides to novels, Émile Zola’s Germinal foremost, warned of its evil effects. Hygienists collected statistics correlating crimes against property with periods of grain shortage.

In the 1980s, physiologists again stimulated hunger and social impulses. The neurotransmitter serotonin was thought to regulate sensations of hunger and appetite. Serotonin was known at that time as the target of Prozac, Zoloft and other antidepressant drugs. Increased levels of serotonin in model animals were found to heighten the activity of muscles associated with feeding, and also to increase aggressive behavior. Lobsters injected with serotonin exhibited dominant behavior, while injection with a serotonin inhibitor produced a submissive lobster. Serotonin was seen as a stimulus to feeding and to social power.

In the 20th century hunger came to be understood as one of many signals that regulate and reconstitute the body in response to external stimuli. This is the body as an information system: organisms receiving environmental signals and altering their own composition in a feedback loop. In the 1920s Walter Cannon popularized the notion of ‘homeostasis’, the tendency of organisms to adjust their internal environment around a constant norm in response to changing environmental conditions. In postwar physiology this term was tightly linked with the language of information systems, notably Norbert Wiener’s model of negative feedback.

In the information systems model, organisms learn to ‘harmonize’ their internal and external environments, and above all to ‘measure’ or ‘regulate’ their intake. Signals, in the form of hormones and neurotransmitters, adjust bodily functions to environmental conditions in a continuous feedback loop. Moutsa performs neural metering, adjusting food intake according to a learned quantity and perceived richness of food content. The stomach, as it empties, emits increased levels of ghrelin hormones to stimulate appetite. The same ghrelin hormones are thought to participate in the operations of learning. Fat cells secrete leptin to induce feelings of satiety. Some popular interpretations of homeostasis theory assume that each individual body has an internal law, a set

1 Jean-Pierre Beaudou, Dictionnaire de médecine usuelle, Paris: Didier, 1849.

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FLÜCHTIGE

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EINE NATURGESCHICHTE FÜR DAS 21. JAHRHUNDERT

HOMMAGE À ZU IHREN VON IN HONOR OF

Hans-Jörg Rheinberger