

Letter to the editor

Architecture, gods and gobbledygook

Keywords: Architecture; Intelligent design; Structural geology; Terminology

The noun *architecture* is being used increasingly in the Journal of Structural Geology (Fig. 1) and elsewhere in the discipline. This letter discusses the origins and meaning of the word, makes the case against its use, and argues against the general introduction of terms that duplicate existing words or phrases.

1. Origins and meaning of architecture

The noun *architecture* relates to the word *architect*, which itself is derived from the ancient Greek word for builder (ἀρχιτέκτων; Oxford English Dictionary, 1989). The Oxford English Dictionary (1989) gives six distinct definitions of *architecture*. The definition with the closest meaning to that apparently implied in the structural geology literature is, “Construction or structure generally”. The Oxford English Dictionary suggests that architecture was first used in this sense by Marlowe (c. 1590, Scene VII):

Tamburlaine.
The thirst of reign and sweetness of a crown,
That caus'd the eldest son of heavenly Ops
To thrust his doting father from his chair,
And place himself in the empyreal heaven,
Mov'd me to manage arms against thy state.
What better precedent than mighty Jove?
Nature, that fram'd us of four elements
Warring within our breasts for regiment,
Doth teach us all to have aspiring minds:
Our souls, whose faculties can comprehend
The wondrous architecture of the world,
And measure every wandering planet's course,
Still climbing after knowledge infinite,
And always moving as the restless spheres,
Will us to wear ourselves, and never rest,
Until we reach the ripest fruit of all,
That perfect bliss and sole felicity,
The sweet fruition of an earthly crown.

Note that Marlowe uses *architecture* in the context of a discussion about gods, perhaps implying the gods were the architects. The first usage that I can find in the geological literature of *architecture* to describe natural structures was by Weeks (1959). The first usage in the Journal of Structural Geology was by Hancock (1985).

2. Who is the architect?

My first criticism of the use of *architecture* to describe geological features is the origins of the word in the ancient Greek for builder. The word could be taken to imply that geological features have a builder. If so, who was the builder? Does use of the term imply divine construction or a belief in intelligent design (e.g. Sober, 2007)?

3. The general problem of the duplication of terms

My second criticism of the use of *architecture* is that it does not improve on the use of the word *structure*. The noun *structure* has been used successfully and unambiguously in geology since the earliest days of the science. For example, the Oxford English Dictionary (1989) gives a definition of structure as “The mutual relation of the constituent parts or elements of a whole as determining its peculiar nature or character; make, frame”, and quotes Bakewell (1815) as stating “Fragments of stone broken from simple rocks display the structure of the internal parts”. Does *architecture* imply anything additional to *structure*? For example, the title of the paper by Agosta and Aydin (2006) is “Architecture and deformation mechanism of a basin-bounding normal fault in Mesozoic platform carbonates, central Italy”, but it could equally have been titled “Structure [or geometry] and deformation mechanism of a basin-bounding normal fault in Mesozoic platform

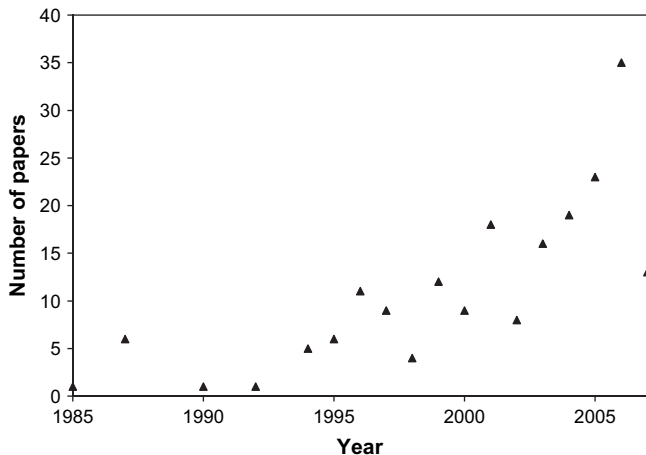


Fig. 1. Number of papers per year in Journal of Structural Geology that use the word *architecture*. These results were obtained using www.scirus.com, and include papers that only use the word in the reference list. Since first usage by Hancock (1985), there has been a general increase, with *architecture* used in 35 papers during 2006. The decrease to 13 papers in 2007 may indicate that usage has peaked.

carbonates, central Italy". Apart from sounding more exciting and intellectual, does *architecture* add anything other than the suggestion of creationism?

Increased use of *architecture* perhaps means that structural geologists should now refer to themselves as *crustal architects*, and maybe the Journal of Structural Geology should be renamed. If *architecture* is used, should we use the ungainly and opaque phrase *architectural features* used as the collective noun for what were previously called *structures* (faults, folds, etc.)?

Science is plagued by new jargon to describe things for which terms already exist. For example, there are multiple approximately synonymous terms for the areas of rotated bedding that occur between normal faults that step in map view, including *relais des failles* (*relay faults*) (Goguel, 1952), *monoclinial ramps* (Macdonald, 1957), *fault bridges* (Ramsay and Huber, 1987), *relay ramps* (Larsen, 1988), *synthetic transfer zones* (Morley et al., 1990), *relay zones* (e.g. Huggins et al., 1995), *strike ramps* (Morley, 1995), *synthetic accommodation zones* (Faulds and Varga, 1998), and *fault relays* (Walsh et al., 1999). Such a multitude of terms causes confusion within science, especially if subtle differences between phrases are not clarified. The introduction of new synonymous terms causes confusion and is therefore unhelpful.

Where does this leave the word *tectonics*, which is also ultimately derived from the ancient Greek word for builder? Although I have reservations about its origins, there does not appear to be a pre-existing, more suitable phrase that describes global-scale structures related to the movement of plates. Also, the word is firmly established in the literature.

4. Conclusion

Use of *architecture* to describe geological structures is both misleading and unhelpful. The word implies the intervention

of an architect and appears to be used synonymously with *structure*. Use of *architecture* to describe natural phenomena is nothing but a pretentious affectation, unnecessary gobbledygook, and introduces a hint of creationism.

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