

### Roots of 'enzyme'

SIR,—There can be no doubt that Kühne introduced the word *Enzym*, from which, of course, was formed its English equivalent. The reasons for his choice are discussed in at least two printed sources<sup>1,2</sup>. But the actual construction of the word from Greek originals is less certain, in spite of some very definite statements in the literature.

Bayliss gave a translation of the relevant passage of reference 2, in two slightly different versions in *The Nature of Enzyme Action*, page 11–12 (Longmans, London 1925) and *Principles of General Physiology* (Longmans, London). The words concerned in the former are as follows " . . . but it merely states that *ev ζῆμην* [in yeast] something occurs that exerts this or that activity, which is considered to belong to the class called fermentative". Nothing could be clearer: rarely do we have as precise knowledge as this of the thought processes of an author. However, Greek words do not occur in the original at all. They are an interpolation by the translator, whose immense authority and influence has led to almost universal acceptance of this version. The original runs at this point, " . . . sondern nur gesagt, dass in der Zyme etwas vorkomme, das diese oder jene zu den fermentativen gerechnete Wirkung habe . . .".

Bayliss's translation of this passage is, in other respects also, remarkably inaccurate. But unless there is concrete evidence of Kühne's intentions we are reduced to considering probabilities, and this direct construction from *ev ζῆμην* still seems rather more likely than the alternative etymology put forward in *The Oxford English Dictionary*. According to this authority, the word was formed on modern Greek *ev ζῆμος*, meaning 'leavened', or more specifically the leavened bread used in the Eucharist of the Greek Orthodox Church. The very word 'enzyme' was used in English in 1850 in this sense. It seems unlikely that Kühne would have had any knowledge of modern Greek and, if not, this derivation appears to be impossible, even though it preserves a connection with the primitive meaning of the word 'ferment' which Kühne was seeking to replace.

As pointed out by Plantefol, in

*Comptes Rendus de l'Académie des Sciences* 226C, 1976, a compound had already been formed in Greek meaning 'yeast in' rather than 'in yeast', so that Kühne's probable sequence of thought was somewhat unfortunate. But even Plantefol seems unaware of Bayliss's blunder. Plantefol also quite justly comments that 'enzyme' has merely taken over the functions of the pre-existing word 'diastase'. (In neither case is the etymology of any relevance to modern ideas of the nature and function of the substances concerned). It seems regrettable, if irretrievable, that this usurpation should have occurred.

Yours faithfully,

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1a *Verhandlungen des Naturhistorisch—Medizinisch Vereins zu Heidelberg* 1 Pp 190–3 (1877). Formally anonymous report of a conference speech by Kühne. Recently reprinted with reference 1b in facsimile in *FEBS Letters*, supplement to 62 (1976).

1b Kühne, W. *Verhandlungen des Naturhistorisch—Medizinisch Vereins zu Heidelberg* 1 Pp 194–8 (1877).

2 Kühne, W. *Untersuchungen der physiologisches Institut der Universität Heidelberg* 1 Pp 291–324 (1878).

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