

— Correspondence —

Scientific names: abbreviations and pronunciation

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Like most international journals on ornithology and other natural sciences, *BB* rightly includes scientific names. In an age when English names remain far from standardised (and probably can never be to everyone's satisfaction), the second Latinised word makes it absolutely clear what species is involved and the first demonstrates generic relationships in a way that, say, 'Common Chiffchaff' and 'Willow Warbler' on their own cannot. Familiarity with scientific names also enables English-speaking birdwatchers to know what species are being discussed in journals and books in other languages.

Against this background, I write belatedly to comment on the editorial announcement on 'Abbreviation of scientific names' (*Brit. Birds* 98: 410), which I had overlooked. It included what I regard as a retrograde inconsistency on abbreviations and some inaccurate instructions on pronunciation. I thank Pete Combridge (who drew my attention to the announcement), David Ballance, Paul Castle, Jeremy Greenwood, Nigel Redman, Robin Williamson and, especially, David Christie and Peter Cranswick for encouragement and helpful comments on earlier drafts. British birdwatchers may think that some of the points below are unnecessarily pedantic, but I have often had to use scientific names, particularly in some countries of continental Europe and South America, to discuss bird species with ornithologists unfamiliar with English vernaculars, and conventional pronunciations have proved essential for sensible communication.

Abbreviations

In the mid 1940s, when I began serious birdwatching, some publications, including *The Handbook* and *BB*, used 'Æ.' and 'Œ.' as abbreviations for *Ægithalus* and *Œenanthe* (now *Aegithalos* and *Oenanthe*)—which seemed quite logical since ligatures, or diphthongs, could hardly be separated—and also 'Ph.' and 'ph.' for all generic and specific names beginning with those two letters. Presumably that was because they represent the single Greek letter φ or φ (phi, pronounced 'fy' like 'why'), but in that case why were not *Charadrius* and *chloris*, to take another example, abbreviated to 'Ch.' and 'ch.', which similarly represent the single Greek letter χ or χ (chi, pronounced 'ky').

Then diphthongs—along with hyphens, diaereses and all other diacritic marks—were ruled out of scientific names by the 1961 edition of the International Code on Zoological Nomenclature; and, at some point, all abbreviations of generic and specific names were reduced to a single letter, which I have always thought much tidier. But the editorial announcement in *BB* for August 2005 stated that, at the beginnings of words, whether in upper or lower case, 'Ph.', 'Ae.' and 'Oe.' (no others) were to be reinstated in *BB* because, to accord with Recommendation 25A of the 1999 ICZN, any abbreviation should be 'unambiguous'. There was, however, still no mention of 'Ch.' and 'ch.' and now, of course, the British List includes the Ring-necked Parakeet *Psittacula krameri* where, again, the two letters 'Ps.' or 'ps.' represent the single Greek letter ψ or ψ (psi, pronounced 'psigh'). So, it must be asked, why

is *BB* not now using the two-letter abbreviations for all three of these Greek letters, not just 'Ph.' and 'ph.'?

On the other hand, nearly 80 West Palearctic species have generic or specific scientific names that begin with one or another of those three pairs of letters; thus, all that *BB*'s U-turn achieves is to reduce, but by no means exclude, possibilities of ambiguity. Developing this argument on a global basis, should *BB* now be expecting not only the abbreviation 'Ph.' to be used for all the 60-odd genera worldwide whose names begin with these two letters, but also for consistency 'Ch.' for another 60 and 'Ps.' for a further 40 or so—not to mention all the hundreds of specific names that begin with these three combination letters? Note that I have omitted 'Pt.' from this argument—even though it involves 22 genera, among them the gadfly-petrels *Pterodroma* and the sandgrouse *Pterocles*—because that represents not one but two Greek letters (which some therefore prefer to pronounce separately), as does the 'Gn.' of the monospecific South American icterid genus *Gnorimopsar*.

Without at least a second letter, the reader does not necessarily know how any abbreviated generic or specific name will continue—except that the full word is always spelt out elsewhere in the same publication. In some journals, when referring to several species, authors or editors occasionally use two- or even three-letter abbreviations—recent examples in one paper in *Sandgrouse* (29: 98–102) included 'Ay.' (*Aythya*), 'Ar.' (*Ardea*), 'An.' (*Anthus*) and 'Chl.' (*Chlidonias*)—but these seem awkward and unnecessary, as anyone familiar enough with the scientific names to be using them will have no difficulty in relating a single initial to the full name elsewhere.

Mispronunciations

The editorial announcement in *BB* then indicated that the letters *Ae* and *Oe* at the beginnings of names should both be pronounced like the first 'e' in 'egret', whereas conventional modern usage in Latin, and therefore in scientific names, demands that neither should—wherever it appears in the Latin or 'Latinised' Greek word. (Although many scientific names are derived from classical Greek, they must still be given a Latin form.) As Robin Williamson has emphasised to me, Latin pronunciations as used by the Church and in legal phraseology may bear limited resemblance to each other or to those taught—formerly much more widely—in English schools and those adopted for scientific purposes. But conventions for the last of these categories must follow some general rules, even if minor disagreements remain (for instance, many now pronounce 'v' as 'w'), while problems can be caused by national variations in the pronunciation of consonants. To give two examples, because 'z' and 'c' in Spanish are spoken as 'th', the Rock Bunting *Emberiza cia* tends there to be pronounced 'Ember-ee-tha thee-a', whereas Italians may speak its specific name as 'chee-a'. Such differences could perhaps be avoided by international agreement, but it is the vowel sounds that are arguably the more important for widespread recognition.

To use here simple rather than international phonetics, it should be standard in the Latin of scientific names for *ae* to be pronounced as 'eye' and *oe* as 'oy', while it is the long *i* at the end of a word which should be 'ee' (as in 'deep')—the last not as an emphasised 'eye', which is how many English-speakers interpret the endings of eponymous Latinised names.

Thus, taking *BB*'s examples, *Aegyptius* should in fact be pronounced as 'Eye-gip-ee-us' and *Aegithalos* as 'Eye-geeth-ah-los' (each with a hard 'g'), and *Oenanthe* as 'Oy-nanth-eh'; in this last connection, note that Latinised bird names beginning 'oe' are usually transliterated from Greek words beginning 'oi' and that 'e' at the end of a Latin or Latinised word should always be pronounced as a short 'eh' (as in 'aim'). (That English words derived from Latin words beginning with 'ae', or from Latinised versions of Greek words beginning with 'ai', are now pronounced in the English language as if they began with 'ee' is neither here nor there because, when spoken, it is the scientific names of animals and plants that need to be pronounced sufficiently similarly in all languages if ambiguity is really to be avoided.)

The specific name *aedon*, which *BB* also included in its list of 'ae' examples, is rather different because, before all diacritic marks were discarded by the ICZN, those two letters used to be printed not as a diphthong, but separately with a diaeresis over the *e* (*Acrocephalus aëdon*, *Troglodytes aëdon*). Thus, *aëdon* was (and *aedon* should still be) pronounced, not as 'ee-don' or even 'eye-don', but as three syllables 'ah-eh-don'. The same applies—taking one more of a number of other possible examples—to the four syllables of 'kris-ah-eh-tos' in the Golden Eagle *Aquila chrysaetos*, which used also to have a diaeresis over the 'e' (like other raptor names which end in *aetos* or *aetus*, all from the Greek for 'eagle').

Rules of pronunciations

Perhaps I may add a few general rules on conventional Latin pronunciation of vowel sounds, confirmed by such readily available works as Allen (1988) and Morwood (1998). First, however, it should be noted that 'Most Latin words have corresponding English word sounds, following the same rules for short and long pronunciation of vowels', but that 'in Latin, unlike English, all syllables in words are pronounced, including the final *e* and *es*' (Stone 2005); indeed, *e* is never mute. Thus, *luscinioides* is six syllables with the *u* as in 'put' and all the vowels pronounced individually (giving the ending 'oh-ee-dehs' which is found also in, for example, *trochiloides*). The letters *c* (also *ch*) and *g* should normally be hard, and *s* (also *ps*) soft; *h* should be sounded as in 'hope', and *au* and *ei* pronounced as in 'how' and 'eight'; also, as shown above, *ae* as in 'high' (unless originally with a diaeresis) and *oe* as in 'boy'; but the two-letter combinations of *eu* and *ui* may be separated as 'ay-u' (e.g. *leucoptera*, *arundinaceus*, *Pheucticus*,) and 'oo-ee' (e.g. *Pinguinus*)—though Stone would pronounce these respectively as in 'feud' and 'wee'. (See also reference to *europaëus* below.) To take just two examples, the scientific name of the Chaffinch *Fringilla coelebs*, frequently mispronounced 'Frin-jilla seelebs', should be 'Frin-gilla koylebs' with a hard 'g' and 'c', while *Poecile*, the genus in which certain of the tits are now placed, should be spoken as 'Poykileh'.

Exceptions

There is one group of arguable exceptions to some of the above rules and they involve the eponyms—names honouring people. The 1961 ICZN, in dropping diacritic marks, replaced the two dots of the Germanic umlaut and of the Scandinavian vowels *ä* and *ö* (also *å* and *ø*) with *ae* and *oe* (and, similarly, *ü* with *ue*), thus arriving at the same combinations as the splitting of the former diphthongs. Although I have not seen it formally stated, I believe that the pronunciations of these pairs of letters in such commemorative names should not be 'eye' and 'oy' (see above), but should follow those of the original names as, respectively, 'eh' and the vowel sound in the English word 'bird' (also the 'ue' as something between 'u' and 'ee'). Thus, such

species and races as *kaempferi*, *holboellii* and *rueppelli* should follow the same pronunciations as the north European names to which they relate with 'ee' (or 'ee-ee') on the end. On the other hand, the *oe* in *phoebe* and the soft *ch* in *chapmani*, being based on English names, should both be the same as in English. The same thought may be applied to the pronunciation of the frequent specific name *europaëus* as 'euro-pie-us'. (Moreover, just as every 'c' in Cetti's Warbler *Cettia cetti* should be pronounced as a soft 'ch' sound because François Cetti was an Italian, so the patronymic in Baillon's Crane *Porzana pusilla* should be 'By-yaw', or 'By-yaw(n)s' when the apostrophe and 's' are added—not 'Bay-lon' or, worse, 'Bay-lee-on' as sometimes heard—since Louis François Antoine Baillon was very much a Frenchman.)

In conclusion, it seems relevant to point out that the specific name of the increasingly newsworthy bacterium *Clostridium difficile* is constantly mispronounced on television and radio, even by doctors, as if it were an Anglicised version ('diff-i-seel') of the three-syllabled French word 'dee-fee-seel', whereas it is in fact the neuter form of the Latin adjective *difficilis* (the root also of the English word 'difficult') and should be pronounced as four syllables, 'diff-ick-il-eh'. Perhaps its nickname of 'C. diff.' is safer!

References

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Editorial comment

We concede that the reasoning behind the change announced in *Brit. Birds* 98: 410 had not been fully thought through, and the above letter highlights this fact. After due consideration, we shall return to the system of using a single letter for abbreviation of generic and specific names, the chief reason being that we feel that this provides the greatest clarity and ease of use for readers. The convention of using a single-letter abbreviation was reinstated at the beginning of Vol. 101. The issue of how to pronounce scientific names is one that we intend to expand upon at some point in the future. *Eds BB*.

Pronunciation of scientific names

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James Ferguson-Lees' letter on scientific names (*Brit. Birds* 101: 97–99) and the editorial footnote that *BB* has a future intention to expand on its pronunciation are welcome. It has always struck me as odd that the written form of scientific names is so closely regulated yet we are allowed a virtual free-for-all in the way they are spoken. The result is that our scientific names are anything but 'unambiguous and universal' in their spoken form (Jeffrey 1977).

As both classicist and ecologist, I have observed where scientists and naturalists experience greatest difficulties in their pronunciation of scientific names, and given thought to how those difficulties might be mitigated. The following notes derive

from this experience, and I hope that they contribute something to the debate opened so ably by James Ferguson-Lees.

First, I think that it is important to correct a misconception. The view that 'we do not know how Latin was spoken, so any pronunciation is as good as any other' is simply untrue. We do in fact have a pretty good idea of the pronunciation of both Greek and Latin in their classical periods (e.g. Allen 1987, Janson 2004). Though historical linguists might quibble over details, the basics are well established. What creates problems is that both Greek and Latin, including their pronunciations, evolved for many centuries after their classical periods. We know much less about these later processes, but their legacies are found in many European languages today.

This situation leads to an understandable practice. In the absence of guidance, those voicing scientific names often assimilate their pronunciations to their own languages. Thus native English speakers tend to pronounce *violaceus* as though it were 'violaceous', *niger* as in the name of the river, *major* and *minor* as if they were the standard English words. Examples are legion. English is notoriously inconsistent in the way individual letters, especially vowels, and groups of letters are sounded, and is a poor model in this context. I feel that Stone's (2005) statement, quoted by Ferguson-Lees, that 'most Latin words have corresponding English word sounds, following the same rules for short and long pronunciation of vowels' should be treated cautiously, as it may encourage too great a confidence in pronouncing scientific Latin as if it were English. Native speakers of classical Latin appear to have voiced letters and letter groups consistently. Such an approach is also found in many languages today. But scientific Latin is no more Spanish than it is English; nor is it Italian, nor any other modern language. Our use of Latin and latinised written forms clearly differentiates scientific names from vernacular ones, and my view is that we should seek to maintain this differentiation in the way we pronounce them.

My conclusion from the above is that we should adopt classical Latin pronunciation for scientific names: its rules are widely agreed, largely simple and easily followed. In a handful of cases, dealt with below, we need also to be aware of pronunciations in classical Greek. To keep things simple, we may for scientific Latin safely ignore the occasional subtle variations in classical Latin pronunciation and stick to basic premises. Ferguson-Lees outlined many of these basics. The following notes are intended to amplify his comments by discussion of further letters and letter combinations, plus issues of stress and the pronunciation of latinised personal and place names.

Pronunciation of letters singly and in combination

Letters c and g. Some guides to Latin pronunciation say that these letters should be pronounced as hard consonants *except before e and i*. In classical Latin *c* and *g* were always pronounced hard, and the softening before *e* and *i* represents a later pronunciation shift. Unfortunately, there is no consistency in this later usage: in Italy *ce* and *ci* are pronounced as *cheh* and *chih*, in Castilian Spanish as *theh* and *thih*, in Germanic languages as *tseh* and *tsih*, and in English and French as *seh* and *sih*. Compare how these languages now pronounce Cicero – who would himself have spoken his name as *Kikero*. A further complication is the tendency for some speakers to soften the letters *c* and *g* before *y* as if it were an *i*; see the next paragraph for the origin and pronunciation of the Latin *y*. The simplest solution, therefore, would be to follow classical Latin in retaining a hard *c* and *g* throughout.

Letter y. This is infrequent in Latin, where it is a transliteration of the Greek upsilon (*v*, *Y*). Its pronunciation should be

something like the French *u* in *tu*. It should never be pronounced as in the English *cycle* or *type*. Thus *cyaneus* should sound something like *koo-an-ey-us*.

Letter j. This letter is used instead of *i* in a few places, e.g. when *i* is followed by another vowel and when *i* occurs between two vowels. In these positions *i* and *j* can sometimes be found more or less interchangeably. In terms of pronunciation, we can perhaps best render *j* by the English *y*-sound (the modern *j*-sound as in January appears only in the Middle Ages). Thus *Jynx* (a transliteration of a Greek bird name) is pronounced *yoonks* (certainly not like the English word *jinx*) and *major* is rendered *mah-yor*. The interchangeable usage of *i* and *j* is demonstrated by *Ajaia ajaja*.

Letter v. In classical Latin this was written as a *u* (except in inscriptions) and pronounced as a *w*. Thus *Vanellus* would be pronounced *wa-nell-us*. A good example is *sandvicensis*, where the *w* sound of the place name is represented by *v*. The letter *w* does not exist in Latin.

Letter x. In Latin this is a transliteration of the Greek xi (ξ , Ξ) and should always be pronounced as *ks*. Thus *Xenus* is pronounced *Ksenus*, and *xanthocollis* as *ksanthocollis*. Modern English usage, which sounds an *x* at the start of a word as a *z* (e.g. *xylophone*), should not be followed.

Letter z. This exists in Latin only in words derived from other languages. It normally represents the Greek letter zeta (ζ , Z). Though some textbooks suggest that the zeta was pronounced as *dz*, it seems that the Greeks themselves may not have pronounced it in a consistent fashion. My recommendation is therefore the simple solution of pronouncing it as the English *z*.

Letter o. Latin and English have only one symbol for *o*, but Greek has two: the 'small o' omicron (*o*, O) and the 'big o' omega (ω , Ω). In simple terms these approximate to a short and long vowel respectively. In latinised forms of Greek words, the lengths of the *o* vowels must therefore be learnt. For example, in *melanopogon* the first *o* is omicron, the other two are omegas, and pronunciation should reflect this ('*melano-paw-gawn*'). The biggest pitfall for English speakers is the diphthong *oo* pronounced as a single sound. This does not exist as a diphthong in Latin or Greek, and when encountered in a scientific name it may represent a Greek word in which separately voiced omicrons and omegas are found together. Examples include *boops*, in which an omicron is followed by an omega, and the beetle genus *Oodes*, which begins with two omegas. These vowels should be pronounced separately, so that *boops* is something like *boh-awps* (certainly not a rhyme with whoops!), while *Oodes* is pronounced *Aw-aw-des* (not like *oo-des*, or even *oods*). The *oo* in a scientific name may, however, indicate a non-Greek origin such as a personal or place name.

Letter e. Greek again has two letters whereas Latin and English have only one. In simple terms the epsilon (ϵ , E) represents a short *e* and the eta (η , H) a long *e*. Knowledge of the length of an *e* may help speakers to place stress correctly (e.g. *Alopochen* has an eta, which carries a stress). However, the single sound problem of *oo* dealt with above appears to be much rarer with *ee*: the few examples of *ee* I have found in scientific names have a non-classical origin.

Combined letters ch, ph and th. These are transliterations into Latin of the single Greek letters chi (χ , X), phi (ϕ , Φ) and theta (θ , Θ). In classical Greek they represent the aspirated *k*, *p* and *t*. When absorbed into Latin, however, the *ph* and *th* letter combinations rapidly became pronounced as *f* and *th* (as in *thin*, not *then*) but *ch* retained its pronunciation as *kh* (as in *Khan*). My recommendation is to follow classical Latin for all three combinations. This means that *ch* (in names derived from

Greek) should always be pronounced *kh* (as in *brachyrhynchus*, *schoenobaenus*, *Alopochen*).

Combined letters *cc*, as in *Accipiter*. This word in classical Latin would be pronounced *Akkipiter*, not *Aksipiter*.

Combined letters *sc*, as in *rufescens*. In classical Latin these two letters would be sounded separately as *ru-fes-kens*, not *ru-fes-sens*.

Words derived from personal and place names

There are very many of these. Some are genuine Latin words, e.g. *aegyptiacus*, and can be pronounced accordingly. In addition, some of non-Latin origin can be adequately rendered by following the pronunciation rules for classical Latin, e.g. *naumannii*. For some, however, this approach is less satisfactory: for example, *brucei* pronounced *bru-kay-ee* and *leschenaultii* pronounced *les-khen-owl-ti-ee*, as they would be in classical Latin pronunciation, obscure the origins of their names. As far as I can see, the only satisfactory solution is for such pronunciations to follow the sounds of the personal or place names from which they are derived. Ferguson-Lees' example is *Cettia cetti*. In some cases the only implication would be a minor one of shifting stress from one syllable to another. Thus *dougallii*, *hemprichii* and *stewartii* in my approach would be stressed on the first syllable, as are the names from which they are derived, whereas classical Latin rules would expect a stress on the second syllable.

A major drawback of this approach, however, is that the speaker needs to be conversant with pronunciations in several modern languages. Thus *vaillantii*, from *Levaillant*, would be rendered *vai-awnt-ee* and *audouinii* becomes *oh-dwan-ee*. So far so good; but how about *mlokosiewiczii* or *przewalskii* (*mlo-koh-she-vich-ee* and *pshe-val-ski-ee*)? Or what do we do about *Fuchsia* (*Fewks-ia* when used as a scientific name)? I suspect that *Bulwer* (as in *Bulweria bulwerii*) pronounced his name without a *w*-sound in the middle, but how can we verify this? Name derivations may also be hard to spot at times: in reading an account of Kaempfer's Woodpecker *Celeus obrieni* recently, I failed to realise for some time that its specific name is derived from O'Brien.

I offer these comments to *BB*'s Editorial Board for their consideration. A solution to pronouncing latinised personal and place names needs to be found, and the rules of classical Latin pronunciation do not on this occasion offer us an adequate solution.

Stress and vowel length

In my experience, the correct placing of stress is one of the commonest difficulties that face those voicing latinised scientific names. Classical Latin has consistent rules for where to apply stress: on a monosyllable, the first syllable of a disyllabic word, and the penultimate syllable of a polysyllabic word if that syllable is 'long' (which is the commoner situation). However, learning these rules may not be a great help, as problems arise:

- when the penultimate syllable of a polysyllable is 'short'. In this situation the stress should fall on the *antepenultimate* syllable. Learning what constitutes 'long' and 'short' syllables is not without its complications as it may involve learning specific vowel lengths in specific words;
- in compound words derived from classical Greek rather than Latin, of which there are many. To place stress accurately requires breaking down the compound word into its component parts and knowing where stress would be placed on each of the components in classical Greek;
- in latinised forms of personal and place names, where the

rules for stress in classical Latin may be irrelevant—I have given examples above.

My suggested solution would be for the editors of *BB* to issue an index of scientific names of Western Palaearctic birds using diacritical marks to show where stress should fall. In similar vein, vowel lengths can also be indicated by the use of such marks. Conventional marks widely used in grammars and dictionaries are ' for a stressed syllable, ¯ for a long vowel and ˘ for a short vowel.

Final thoughts

I have tried to suggest ways in which the pronunciation of scientific names may be standardised and made more widely intelligible. For some the adoption of my suggestions will mean abandoning personal usages of long standing; for many, especially those who anglicise their pronunciations, the results will sound odd. But there are clear gains to be made. One of the least significant, though personally satisfying, would be the rescue of *Circus*. This genus is not, in fact, derived from the Latin word *circus* at all, but is a latinised transliteration of the Greek *κιρκος*—a bird of wheeling flight. Pronouncing it *keer-kus* in the classical Latin way would help to separate the genus from any associations with places of public entertainment!

More importantly, I believe that we need a standardised system of pronunciation because I suspect that a lack of clear guidance on this issue is confusing to many and may act as a deterrent from the use of scientific names. The aim of scientific nomenclature is to adopt a unique, unambiguous and universal name for every organism, and its oral transmission is just as important as its written one. For a science with such a large amateur following as the study of birds, a high level of accessibility is particularly important. That the 'unique, unambiguous and universal name' is, for birdwatchers in many countries nowadays, often the English vernacular name is a trend which upholders of the traditional system may wish to ponder.

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Errata

Indian Birds Volume 4 Number 3 (March–April) 2008.

Page 90, column one, tenth line from bottom, read: "Hindustan Salts Limited: www.indiansalt.com/key.html."

Page 93, column one, 20th line from bottom, read: "*Charadrius dubius*" instead of *Charadrius dubiosus*.

Page 93, column two, eighth line from top, read: "*T. totanus*" instead of *T. tetanus*.

Page 94, column one, 16th line from top, read: "*G. lactea*" instead of *G. lacteal*.

Page 94, column two, 17th line from top, read: "*Hierococcyx varius*" instead of *Hierococcyx various*.

Page 96, column one, eighth line from top, read: "*Turdus unicolor*" instead of *Z. unicolor*.

Page 96, column one, 19th line from top, read: "*Saxicoloides fulicata*" instead of *Saxicola fulicata*.