

line and feminine. The pupils should be led to analyze the endings, and to find that although they all have the *e* in the feminine, yet the list can be divided into three parts, viz., (1) such as double the final consonant, e.g. *bon(n)(e)*; (2) such as change it, e.g., *heureu(s)(e)*, and (3) such as change the final syllable, e.g., *fi(èr)(e)*. This leads to three modifications of the rule laid down: 1. What consonants double? *s* by itself or *l, n, t*, preceded by *e, ei, o*. The teacher must show that this is an expedient of orthography to preserve the short sound of the vowels. Note: Be careful to write down here the forms *fil, jumel, nouvel, fol, mol, vieil*. The change of *l* to *u* the pupil knows already from *à le = au*. The six adjectives *complet* etc., must be learned as exceptions stating why. Examples: *bas, cruel, pareil, ancien, muet, sol*. 2. What consonants change? *c, q, f, x*. How? *c* to *ch* or *qu*; *g* to *gu*; *f* to *v*; *x* to an *s* sound (*s, ss, c*). Why? The principle involved can be made plain by writing up adjectives with the *e* added without making these changes and by showing that the pronunciation would be affected and the word spoiled, e.g. *public(e), ture(e)*, etc., and that *qu* for *c*; *v* for *f*; *gu* for *g* are orthographical expedients for a similar purpose. Show also *x = s = c*. In fact there is room here for much valuable teaching in phonetics. Examples to be used: *blanc, public, long, vif, heureux, roux, doux*, etc. 3. What adjectives change final syllable? Those in *eur, teur, er, gu*. How? *eur = ant* of present participle makes *euse* (L. *osa*) except the six or seven which have the older *esse* (L. *issa*, Eng. *ess*), e.g., *demandeur, demanderesse*; *teur* (L. *torem*), *trice*, compare Eng. *executrix*; *er* to *èr* caused by change of accent: *gu* to *guè* because if left without the diaeresis the pronunciation would be destroyed. Examples: *menteur, accusateur, fier, ambigu*. The pupil will have difficulty in distinguishing the adjectives in *eur* making *eure*. A convenient test to apply is to say that adjectives in *eur* having equivalents in English or Latin in *or*, simply add *e*, e.g., *supérieure* (Eng., superior, etc.)

The above is a mere sketch of what may

be done in teaching French grammar. The method applies equally to the whole study of the grammar of a foreign tongue; to be useful, such study must be based on observation, and the pupil must learn to analyze and generalize. Otherwise grammar degenerates into mere memory-work, useless for mental discipline.

The teacher should consult Brachet's "Public School French Grammar," from which the facts of the above are mainly drawn; it is a book which should be in the hands of every teacher of French.

NATURAL SCIENCE.

H. B. SPOTTON, M.A., Barrie, Editor.

THE extraordinary earthquakes which have lately devastated so large a district in Spain have awakened a lively interest in this class of phenomena, and led to the discussion of various theories to account for them. The most plausible appears to be one enunciated long ago: namely, that the cooling process, which geologists assume to be still going on in the interior of the earth, causes contractions, and consequently fissures and foldings, in the solid crust. It is almost impossible to account for the vast mountain ridges which intersect the earth's surface in all directions on any other hypothesis. As there is the clearest evidence of upheavals and convulsions in past ages which seem to be due to the contraction which results from cooling, it seems reasonable to suppose that the convulsions of our own time, similar in character, are due to the same cause. Another theory, however, is worthy of notice, and that is, that vast subterranean caverns are formed by the solvent action of water upon salt and other soluble substances beneath the surface, eventually causing a collapse of the crust.

The Department of Marine has issued a neat map showing the route of the *Neptune* in the Hudson's Bay Expedition of 1884. This expedition (in charge of Lieutenant Gordon, of the Meteorological Office, Toronto) was undertaken for the purpose of