

genous substances. Such a mixture should be capable of some separation by ordinary chemical means. Any method of rigorous purification, such as that employed in the purification of lipoids, would certainly effect some change in the composition of this mixture.

Without criticizing the arguments of Barbieri, some of which (*e. g.*, the statement that glycerolphosphoric acid may be formed during the process of hydrolysis, from the glycerol of the fat and dilute phosphoric acid) certainly are open to criticism, we offer the following argument for the existence of lecithin.

The work of earlier workers seems to be sufficient to show that lecithin is a chemical substance, even though the analyses of the products from various sources (brains, heart, liver, egg) did not agree very well. But if any doubt existed as regards the existence of lecithin, it would seem that the recent work of Levene and West<sup>2</sup> proves that such an idea is not tenable. Not only has lecithin, as such, been isolated from the above-mentioned sources, but derivatives have been prepared and subjected to rigorous purification, always with the same result. The following facts may be mentioned.

Lecithin, from various sources, such as the primary alcoholic extract, the primary ethereal extract, the secondary alcoholic extract, or the fraction dissolved in egg oil, has been precipitated as the cadmium chloride salt, giving a product of very similar composition. This salt has been purified by crystallization from two parts ethyl acetate and one part 80 per cent. ethyl alcohol, or by extraction with ether and subsequent crystallization, with little or no change in its composition. Furthermore, the salt may be decomposed with ammonium carbonate (Bergell) and the free lecithin again converted into its cadmium chloride salt; this salt will still have the same elementary composition.

A more convincing proof of the chemical individuality of lecithin is found in the preparation of hydro-lecithin. Lecithin (especially those samples which have been washed with

water and acetone, according to the directions of MacLean) is very readily reduced with hydrogen (using Paal's method, with colloidal palladium as the catalyzer) and yields a crystalline tetrahydrolecithin, which may be obtained in an analytically pure form by crystallization from methyl ethyl ketone, and once pure, may be recrystallized repeatedly, without change in composition, from such solvents as methyl ethyl ketone, alcohol, or ethyl acetate. If, as Barbieri claims, fats are present, they would remain in the methyl ethyl ketone liquors; our experience in the purification of cerebrosides indicates that this is one of the best solvents for the removal of fat.

We have also combined these two processes. Lecithin has been precipitated from alcoholic solution by cadmium chloride, the salt decomposed with ammonium carbonate, the free lecithin washed with water and acetone, and then reduced with hydrogen. In this way Levene and West have obtained a chemically pure tetrahydrolecithin.

It is hard to believe that a mixture of choline, glycerides, and phosphates, such as Barbieri claims for lecithin, can be subjected to the above methods of treatment and give, in every instance, a body with identical chemical composition. Rather, I believe, it is easier to accept the chemical individuality of lecithin.

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#### DESMOGNATHUS FUSCUS [SIC]

FULL many a biologist, in his use of the classics, has encountered two special stumbling-blocks; the fourth Latin declension, and the Greek noun whose gender does not fit its form.

Concerning the first of these, so many anatomical nouns, among them certain of the most commonly used ones, belong to this weak form of declension that the student of anatomy may almost consider the fourth the commonest one for masculines in *-us*. He meets with *ductus*, *arcus*, *fetus*, *plexus*, and *nexus*; with *processus*, *recessus*, *meatus*, *tractus*, and *sinus*, while the five senses, with *sensus* itself, are

<sup>2</sup> Levene, P. A., and West, C. J., *J. Biol. Chem.*, 1918, 33, 111; 34 (in press).

all of the fourth declension; *visus*, *auditus*, *gustus*, *olfactus*, and *tactus*. Awkward as is any plural form of these words in English, the anatomist has to come to it, and speak of "arcuses, ductuses, and fetuses," or else appear to talk bad Latin, and repeat the singular form.

The mistaking of an unusual gender, such as a Greek masculine of the first declension, or a Greek feminine of the second, is still easier, as here the erroneous form sounds to us right, and the correct form incorrect. It takes a bold man indeed to speak of *Erigeron bellidifolius* or *Plethodon glutinosus*, where the masculine form used for the genus looks like a neuter, and it seems to us still more unnatural to say *Desmognathus fusca*, instead of the (to us) more natural *fuscus*. Unfortunately this mistake was made at the original naming of this species by Spencer F. Baird in January, 1850, and this initial mistake was followed by several illustrious men, both anatomists and systematists, among others by Wiedersheim (1887), W. K. Parker (1879), Boulenger (1882), and as late as 1909, by Gadow. On the other hand the correct form *fusca* was used by Cope (1889), by the later systematists, G. M. Allen, Fowler and Dunn, and in the anatomical and embryological writings of Kingsbury, Hilton, Mrs. Seeley, Mrs. Wilder, H. H. Wilder and others. Moore, in describing his new Salamander, *Leurognathus marmorata*, used the correct feminine form for the specific name, as did also Dunn in his new sub-species of *Desmognathus*, *ochrophaea carolinesis*. Since now, practically all the writings of the last decade have corrected the old errors, and restored *Desmognathus* to its proper gender, it is a great pity that in the new (1917) check list of Reptiles and Amphibians by Stejneger and Barbour, the old erroneous masculine form is brought back again, and we find *Desmognathus fuscus* in all its shame. And, in addition to this, come all the other *Desmognathoe*; *ochrophaea*, *quadrimaculata* (or, following the original error, *quadramaculata*), and the sub-species *auriculata*, all changed, to the masculine like the maiden Coenis of the poet Ovid, ap-

pearing in the form of nondescript gynandromorphs! Let us hope that, unlike this changeable person, the species thus transmuted will not become invulnerable.

But, having once, in flat defiance of Homer, Herodotus, and every other Greek writer from Hesiod to Eleutherios Venizelos, changed the grammatical gender of the noun γνάθος it becomes necessary to change also the specific name of Moore's *Leurognathus*, which, instead of appearing as Moore originally gave it (1899), as *Leurognathus marmorata*, is also masculinized as *Leurognathus marmoratus*.

Still more unfortunate are the mistakes in quoting both Moore and Dunn, the former being quoted as having originally used the form in *-us*, which he did not, and the latter, as having written *ochrophaeus carolinesis*, whereas he was most careful to use the feminine in *-a*. Altogether it is a bad mix-up, and being in a check-list, which will be used as an authority for years to come, it may actually foist this glaring solecism upon American herpetologists beyond the power of correction.

Mark Twain, in his rules for improving the German language, suggests the reconstruction of their genders in accordance with the plan of the Creator, "as a tribute of respect if nothing else." In the correction of "*Desmognathus fuscus*" we have a chance to show some respect to the Greek language.

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#### A MOLLUSCAN GARDEN PEST

IN a previous number of SCIENCE<sup>1</sup> the writer called attention to the presence of a slug (*Agriolimax agrestis* Linn.) in gardens which was doing considerable damage to such vegetables as cauliflower, lettuce and potatoes. During the past summer (1917) and early fall this slug has become much more troublesome and in some localities has caused considerable damage.

At Brewerton, N. Y., it was observed eating cabbages and potatoes; in Syracuse it has attacked potatoes, causing a large amount of injury in several fields and gardens. The writer

<sup>1</sup> SCIENCE, N. S., Vol. XLIII., p. 136, 1916.