Soc., XLII., pp. 268–274) Dr. O. P. Hay, among other questions, endeavors to show that Wagler's *Aspidonectes* must stand for the large genus of soft-shelled turtles typified by the species *Testudo triunguis*, and that *Amyda* must be regarded as a synonym of the former. As I shall show below, the case must be reversed so that *Aspidonectes* becomes a synonym of *Amyda*.

Dr. Hay proceeds from the assumption that Wagler (1830) was the first author to subdivide the genus *Trionyx*, and if that were the case his reasoning would undoubtedly hold good. Unfortunately the subdivision was undertaken as early as 1816 by Oken. In his 'Lehrbuch der Zoologie,' volume II., p. 348, the latter divided the genus in two, one containing the majority of the species, which he called *Amyda*, and one for the single species *T. granosus*, which he expressly calls *Trionyx granosus*, thus evidently reserving the generic term *Trionyx* in a restricted sense for this species. He thus anticipated Wagler by fourteen years in limiting *Trionyx* to the genus which afterwards has been currently known as *Emyda*. The part of Dr. Hay's argument which relates to the latter is, therefore, not affected by Oken's action. But *Amyda* and *Aspidonectes* are not exactly coextensive, inasmuch as Oken does not definitely place *T. subplanus* in either of the two genera, being uncertain as to its affinities and referring to it both as *Amyda subplana* and as *Trionyx subplanus*. Consequently it can not with any show of reason be made the type of any of these genera.

The next man to adopt Oken's name *Amyda* was Fitzinger, who in 1835* restricted it to three species, viz., *T. subplanus*, *T. muticus* and *T. euphraticus*. As shown above, *T. subplanus* can not be Oken's type, neither can *T. muticus*, which was described long after Oken. There remains consequently for type *T. euphraticus*.

It thus becomes unnecessary to discuss Bonaparte's subsequent employment of *Amyda* in 1836, but it may not be out of the way to observe that his arrangement can not be made to differ from Fitzinger's of the previous year, inasmuch as it is a paraphrase pure and simple of this author using his characters verbatim and quoting all the subgeneric names as '*Aspidonectes*, Fitz.,' '*Platypeltis*, Fitz.,' '*Pelodiscus*, Fitz.,' and '*Amyda*, Fitz.,' the only difference being that Bonaparte does not mention more than one of the species Fitzinger included.

As Dr. Hay has clearly shown, the type of Wagler's *Aspidonectes* by elimination is *A. triunguis*. He does not mention in his article in which genus he would place *T. euphraticus*, but I think there can be but little doubt that the two species are strictly congeneric, and that consequently *Aspidonectes* becomes a synonym of *Amyda*.

If *T. subplanus* is generically distinct it must retain the name *Dogania* given it by Gray in 1844. Dr. Hay considers it congeneric with *Aspidonectes* (now *Amyda*), but I wish to call attention to the fact that it is not only unique in having all the pleuralia separated by the neuralia, but also in lacking the median process of the hypoplastron, as shown recently by Dr. Siebenrock. Altogether it possesses so many peculiar characters that it seems more worthy of separation than the North American species which Dr. Hay would recognize as *Platypeltis*.

LEONHARD STEJNEGER.
U. S. NATIONAL MUSEUM,
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* There is no reason for quoting his paper in the first volume of *Annalen des Wiener Museums* from 1836. It was certainly published before Bonaparte's 'Tabula analytica,' as he quotes Fitzinger throughout.

A NEW FIELD FOR LANGUAGE STUDY.

THE latest form of instrument in which a spoken language is magnetically recorded in a steel piano wire, was shown to the members of Section B at the recent meeting of the American Association for the Advancement of Science at Philadelphia. The wire is carried on two spools driven electrically, and can be reeled from either to the other. During this operation the wire passes between the poles of a small magnet, and by magneto-induction the spoken words are reproduced in the receiving instrument. If the motion of the wire is direct you hear the words as they

are ordinarily heard in conversation. If the wire is reversed, you hear the same sounds presented in reverse order. You hear what you would hear if you were to follow the sound waves after they have passed the ear, traveling through them in a radial direction with twice the velocity of sound. The reversed words are perfectly definite in character, and constitute a new language related in a simple mathematical way to that originally spoken. One might learn to pronounce a sentence of this language, thus derived from an English sentence, impress it upon a fresh wire, and the instrument on reversal would translate it into English. This new language might be called the Hsilgne. It is related to the English language in a way that may be roughly represented by the equation

$$\text{Hsilgne} = \text{English} \times \cos 180°.$$

This word forming the first member of the equation is not the English spelling of the word English when pronounced backwards. In order to properly typify the relation between the two languages, not only should the order of the letters be reversed, but each letter should be reversed as to right and left, as when the word is seen by reflection from a mirror.

The ear may, however, be supposed to traverse the system of sound waves produced by an orator, in any one of an infinite variety of directions. The path traversed by the ear, and a radial line drawn to the mouth of the speaker, may make any angle α between 0° and 180°. If the velocity of the ear be correspondingly varied, we shall have in the above case a great spectrum of languages lying between Hsilgne and English. The variable language will in general be represented by the equation

$$\text{Language X} = \text{English} \times \cos \alpha.$$

As the angle α approaches 90°, the variable language becomes more barbarous and inarticulate. When $\alpha = 90°$, the ear would be moving parallel to the wave fronts, and nothing would be heard. The conditions realized are analogous to those which hold in a photographic plate when the fog line is approached, separating the negative from the positive picture. It would be very interesting to determine whether there is any radical difference between the positives and the corresponding negatives of a spoken language. Each language, corresponding to a given value of α with English as a base, would have a corresponding negative, where the angle is $\alpha + 180$. The Poulsen instrument is now perfectly adapted to the study of the relation of any language to its negative, if either be placed on record in the wire. Of course in such a reversal as the Poulsen instrument gives, the grammatical construction is also reversed. Some of the difficulties that would be met in learning to talk Hsilgne can be realized by reading this communication backwards, beginning with the last word and ending with the first. In such a reading the words themselves are not reversed, but the order in which they are presented to the ear is that which would hold in the negative language.

Francis E. Nipher.

QUOTATIONS.

SALARIES AT HARVARD UNIVERSITY.

Speaking roughly, the rule may be said to be that a full professor in Harvard College receives $4,000 a year, an associate professor $3,000, an assistant professor $2,000, an instructor $1,000, and an assistant from $250 to $400. In the last academic year there were in the college 51 full professors, 2 associate professors, 38 assistant professors, 7 lecturers, 1 tutor, 88 instructors, and 87 assistants. Of the professors, 14 received $5,000; 1, $3,600; 10, $3,500; 3, $3,000; 4, $2,000; and 1, $1,000. This showed a total item of salaries of about $227,000. The actual average, based on the exact figures, which are not those given here, was $3,984, which confirms the impression that the Harvard professor is a $4,000 man.

The incomes of the other classes of instructors show similar variations. The two associate professors receive $3,500; but salaries of the assistant professors range from $3,000 down to $500; the average being $2,160. The lecturers average $781 each, while the compensation of instructors ranges from $2,000 to $100, with an average of $999. The assistants