

expression of his views, lost gifts and legacies and might lose more. The occurrence is extremely regrettable. It might have been better if President Andrews had not felt called upon to advocate the views of a political party unpopular in Rhode Island, but if the trustees have by their action increased 'gifts and legacies' to Brown University they have done harm to the cause of education. The first part of President Andrews' letter of resignation is as follows :

Believing that, however much I might desire to do so, I should find myself unable to meet the wishes of the corporation as explained by the special committee recently appointed to confer with me on the interests of the University without surrendering that reasonable liberty of utterance which my predecessors, my faculty colleagues and myself have hitherto enjoyed, and in the absence of which the most ample endowment for an educational institution would have but little worth, I respectfully resign the presidency of the University, and also my professorship therein, to take effect not later than the first day of the approaching September.

DISCUSSION AND CORRESPONDENCE.

AMPHIBIA OR BATRACHIA.

PROFESSOR GILL in his excellent address 'Some Questions of Nomenclature,' delivered at the Buffalo meeting of the American Association for the Advancement of Science,* makes the following remarks about the name *Amphibia* (p. 600): "Why should the name *Amphibia* disappear and *Batrachia* and *Reptilia* usurp its place? *Amphibia* is a far better name for the *Batrachia*, and in every way defensible for it. The name had especial relation to it originally, and it was first restricted to it as a class." In the Editor's Table of the *American Naturalist*, December, 1896, p. 1027, we read the following from the pen of Professor Cope: "It is difficult to eradicate from scientific literature a name or word which has become current, even after it has been found to be an expression of ignorance or error. Thus some names introduced into zoology die hard. Perhaps the most pestilent pretender of the list is the word *Amphibia*, which is so frequently used instead of the proper

* SCIENCE, N. S., Vol. IV., No. 95, Oct. 23, 1896, p. 581-601.

name of the class *Batrachia*. The name *Amphibia* was originally applied to a combination of the *Reptilia* and *Batrachia*, before the fundamental differences between the two were known. When the *Batrachia* were first separated from the *Reptilia* the new name was naturally applied to the new division, and the name *Amphibia* would have been more applicable to the larger division of its former self, *i. e.*, the *Reptilia*. As, however, its definition accorded with neither the *Reptilia* nor *Batrachia*, it was not used for either; nor was it introduced to take the place of *Batrachia* with a definition, until a few years ago by Huxley. This was done in defiance of the universal usage of naturalists at the time, and probably in ignorance of the real state of the case, since it frequently happens that men engaged in the real work of biological science find questions of names irksome and stupid. Nevertheless it is a distinct advantage always to have but one name for one thing, and that name should be the oldest which was applied to the thing in question as determined by the definition given. Applying this principle, the name *Batrachia* has a quarter century priority over *Amphibia*."

I shall show that the opinion of Professor Gill is the only one that can be accepted.*

In the 10th edition of Linné† we have the following :

Classis III. *Amphibia*.

I. *Reptiles* os respirans : Pedes quattuor.

103, *Testudo* ; 104, *Draco* ; 105, *Lacerta* ; 106, *Rana*.

II. *Serpentes*, os respirans, Pedes Pinnæ nullæ.

107, *Crotalus* ; 108, *Boa* ; 109, *Coluber* ; 110, *Anguis* ; 111, *Amphisbæna* ; 112, *Cæcilia*.

III. *Nantes*, Spiracula lateralia, Pinnæ natatoriae.

113, *Petromyzon* ; 114, *Raja* ; 115, *Squalus* ; 116, *Chimæra* ; 117, *Lophius* ; 118, *Acipenser*.

The next author of importance to be mentioned is Alexandre Brogniart. His 'Essai

*Nine years ago I followed Cope (*Beiträge zur Morphogenie des Carpus und Tarsus der Vertebraten* I. Theil. *Batrachia*. Jena, Gustav Fischer), but later I found that I was mistaken.

† Caroli Linnæi *Systema Naturæ*. Tomus I. Editio Decima, Reformata Holmiæ. 1758. Pp. 194-238.

d'une classification naturelle des Reptiles' was published in 1799.*

Brogniart divides the Reptiles into four orders: *Chéloniens*, *Sauriens*, *Ophidiens*, *Batraciens*, and gives the following characters: (Bull. Sciences Soc. Philom, No. 35, pp. 81-82. 1800):

"1^{er} Ordre: Les *Chéloniens* (il renferme les tortues). Ces Reptiles n'ont point de dents enchassées, mais leurs mâchoires sont enveloppées de gencives cornées tranchantes, leur corps est couvert d'une carapace. Il est bombé. Ils ont deux oreillettes au cœur, un estomac plus volumineux que les autres reptiles, un canal intestinal garni d'un cæcum, ils s'accouplent et pondent des oeufs à coquille calcaire solide. Ils se nourrissent en grande partie de végétaux."

2^e Ordre: Les *Sauriens* (renferment les crocodiles, iguane, dragon, stellion, gecko, caméléon, lézards, sinque, chalcide).

Tous ces animaux ont des dents enchassées, deux oreillettes au cœur, des côtes et un sternum, le mâle n'a un organe extérieur de génération; ils s'accouplent réellement, pondent à terre des oeufs à coquille calcaire, d'où sortent des petits qui ne subissent pas de métamorphoses. Ils ont des plaques écailleuses ou des écailles sur le corps.

3^e Ordre: Les *Ophidiens* (renferment les genres connus sous le nom général de serpents).

Ils se rapprochent plus des reptiles des premiers ordres que de ceux du quatrième, comme eux ils ont de longues côtes arquées, le mâle a un organe extérieur de génération, ils s'accouplent réellement et pondent des oeufs à coquille calcaire d'où naissent des petits en

*Brogniart, Alexandre, *Essai d'une classification naturelle des Reptiles*. *Magazin encyclopédique ou Journal des Sciences, des Lettres et des Arts*, rédigé par A. L. Millin. Tome V., pp. 184-201, 1799, reprinted in *Bulletin des Sciences*, par la Société Philomatique, No. 35, 1^{re} Partie, pp. 81-82, Paris, Pluviose, an 8 de la République. II^e Partie No. 36, pp. 89-91, pl. VI. Ventose, an 8 de la République. (January 21st-March 19th, 1800.) The same paper, more extensive, was published in *Mémoires présentées à l'Institut des Sciences, Lettres et Arts*, par divers Savans, et dans les Assemblées. *Sciences mathématiques et physiques*, Vol. I., pp. 587-637, 2 pl., Paris, XIV.—1805; also separate, Paris, Baudouin, Imprimeur de l'Institut National. Prairial An XIII.—1805.

tout semblable à leurs parents; mais ils diffèrent des Sauriens, parce qu'ils n'ont qu'une oreille au cœur, point de sternum, que les mâles ont une verge double, qu'ils pondent des oeufs à coquille calcaire molle et qu'ils n'ont point de pattes.

4^e Ordre: Les *Batraciens*, (contenant les crapauds, les raines, les grenouilles et les salamandres).

Ces animaux diffèrent autant des trois premiers ordres, qu'ils se conviennent entre eux, et l'auteur prouve que les salamandres qu'il a placées dans cet ordre, n'ont d'autre analogie avec les lézards, parmi lesquels on les avait mises, que d'avoir comme eux le corps allongé, des pattes et une queue.

Tous ces reptiles ont d'ailleurs une seule oreille au cœur, points de côtes ou seulement des rudiments de ces os, la peau nue et des pattes, le mâle n'a aucun organe extérieur de génération et il n'y a point d'accouplement réelle, la plus part du temps les oeufs, sont fécondés hors du corps de la femelle. Ces oeufs sont sans coquille et pondus dans l'eau; les petites qui en sortent ont des branchies à la manière des poissons, et diffèrent de leurs parents pendant les premiers moments de leur vie, ils se rapprochent par cela même des poissons; ces animaux doivent donc être placés dans l'ordre naturelle de la fin de la classe des Reptiles et immédiatement avant celle des poissons."

The close relationship between the frogs and toads and the salamanders had already been observed by Laurenti (1768) and Lacépède (1788-89), but they did not make any use of this fact in their classifications. It is the merit of Brogniart to have united these forms in a single order of his reptiles, which he called *Batraciens*. At the same time it is evident that he did not oppose the order *Batraciens* to the rest of the *Reptiles*, but gave it the same value as to the single orders *Chéloniens*, *Sauriens* and *Ophidiens*.

The first Latin names were given to these orders by Treviranus in 1802 and by Shaw in the same year.

Treviranus* uses the name *Amphibien* for the

*Treviranus, Gottfried Reinhold, *Biologie, oder Philosophie der lebenden Natur für Naturforscher und Ärzte*. Bd. I., pp. 260-265 Göttingen, 1802.

whole group, and following Brogniart he divides it in four orders :

- I. Schildkröten. *Testudines*.
- II. Eidechsen. *Lacertæ*.
- III. Schlangen. *Serpentes*.
- IV. Frösche. *Ranæ*.

Shaw * uses the same names for the four orders of his *Amphibia* in the following order : I. *Testudines*. II. *Ranæ*. III. *Lacertæ*. IV. *Serpentes*.

We see the *Latin* name *Batrachia* was not used at all by Brogniart, as stated by Professor Cope in 1889 (*Batrachia* of North America, p. 17). The first *Latin* name for the order is *Ranæ*,

ders *Chelonii* (*Testudines*, Treviranus, Shaw, 1802), *Saurii* (*Lacertæ* Treviranus, Shaw), and *Ophidii* (*Serpentes* Treviranus, Shaw); the second one the order *Batrachii** (*Ranæ* Treviranus, Shaw).

Two years later, in 1806, C. Duméril † used the *Latin* names: Class, *Reptilia*, with the orders, *Chelonii*, *Saurii*, *Serpentes*, *Batrachii*.

Gravenhorst, ‡ in 1807, calls the orders: *Chelonia*, *Sauria*, *Ophidia*, *Batrachia*. §

Oppel || opposed the 'Batraciens' to the other *Reptilia*, as can be seen from his diagnosis, but he did not give any special names to the combined opposed orders.

Classis REPTILIA. Animalia vertebrata ; pulmonibus ; sanguine frigido ; pilis, mammellis, plumisque carentia.	
Corpus {	obtectum { testa, sternoque.....I. <i>Testudinata</i> (Klein). squamis, costis proprie dicti.....II. <i>Squamata</i> (Oppel).
	nudum, i. e., nec testa, nec squamis ; genitalia exteriora nulla ; metamorphosis...III. <i>Nuda</i> (Klein).

Treviranus, and if we would follow Cope's opinion about this question we should have to call the class *Amphibia Ranæ*.

In 1804 Latreille † published his 'Tableau méthodique des Reptiles.'

Classe troisième.

Reptiles, REPTILIA.

I. Des pattes, ayant des doigts onguiculés, ou point des pattes ; jamais de branchies ni de métamorphose.

Ordre I. *Chéloniens*, CHELONII. Des pattes ; corps enveloppé dans une boîte osseuse.

Ordre II. *Sauriens*, SAURII. Des pattes ; corps nu.

Ordre III. *Ophidiens*, OPHIDII. Point des pattes.

II. Doigts des pattes n'ayant pas d'ongles ; des branchies, du moins pendant un temps ; de métamorphose.

Ordre IV. *Batraciens*, BATRACHII.

We see, that Latreille divides the *Reptilia* in two groups, without giving special names to them. The first group contains the Or-

Oppel was also the first one who placed the *Cœcilians* in the *Amphibia* ; he also placed *Anguis* in the *Lacertilia*. The affinity between *Anguis* and the *Lacertilia* had been recognized, however, already one year before by Lehmann. ¶

Now follows the important paper of de Blainville, ** published in 1816. He divides the reptiles into two classes or subclasses, as will be seen from his diagram.

*This is the first occurrence of the *Latin* form of *Batraciens* Brogniart.

† Duméril, Constant. *Zoologie Analytique ou Méthode Naturelle de classification des Animaux*. Paris, MDCCCVI., pp. 74-95.

‡ Gravenhorst, I. L. C. *Vergleichende Übersicht der Linneischen und einiger neueren zoologischen Systeme*. Göttingen, 1807, p. 397.

§ This is the first use of the name *Batrachia*.

|| Oppel Michael. *Die Ordnungen, Familien und Gattungen der Reptilien als Prodrom einer Naturgeschichte derselben*. München, 1811, 86 p.

¶ Lehmann, C. D. W. *Über die Zerbrechlichkeit der Blindschlangen und die Übereinstimmung des inneren Baues derselben mit den Eidechsen*. *Magaz. der Gesellsch. Naturf. Freunde*. I-Berlin. Jahrg. IV., pp. 14-31, 1810.

**Blainville, H. de. *Prodrome d'une nouvelle distribution systématique du règne animal*. *Bulletin des Sciences par la Société Philomatique de Paris*. Année 1816, pp. 113-124.

*Shaw, George. *General Zoology or Systematic Natural History*, Vol. III., Part I., *Amphibia*, p. 5. London, 1802.

† In the *Nouveau Dictionnaire* Hist. Nat., Vol. 24, p. 61.

Classe IV^e; LES AMPHIBIENS

AMPHIBIENS	I ^{er} degré d'organisation ou ordre	Sous-ordre	{ I. <i>Aquipares</i> . Rainette, grenouille, Crapaud II. <i>Dorsipares</i> . Pipa.
	BATRACIENS		
	II ^e degré d'organisation, ou ordre		
	PSEUDOSAURIENS, ou Salamandres.		
	III ^e degré d'organisation, ou ordre		
	SUBICHTHYENS. Les Protées, Sirènes.		
	IV ^e degré d'organisation ou ordre		
	PSEUDOPHYDIENS, ou Coecilies.		

Three years later Latreille* used the Latin names *Reptilia* and *Amphibia* for de Blainville's classes *Reptiles* and *Amphibiens*, and these names ought to be used. Gray† in the same year, but later used the same names as distinct classes.

This name is used to-day all over Europe, France excepted.

Latreille's characters are the following:

P. 90. "*Première Classe*. REPTILES. REPTILIA.

"Ils ne respirent, et en tout temps, que par des poumons. Le cœur a deux ventricules et deux oreillettes. Les mâles ont une verge quelquefois double ou fourchue et s'accouplent. Plusieurs sont sujets à des mues complètes, ou se défont de leur peau, mais aucun n'éprouve de métamorphose. Le corps est plus souvent garni d'écailles ou emboîté; les pieds sont toujours armés d'ongles très-sensibles. La coque des oeufs est dure ou du moins coriace."

P. 103-14. "*Seconde Classe*. *Amphibiens*. AMPHIBIA.

"Ici les deux poumons sont accompagnés, soit dans le jeune âge, soit pendant toute la vie, de branchies. Le cœur n'a qu'un ventricule et qu'une oreillette, tant que les branchies persistent, un tronc artériel et dorsal tient lieu du ventricule qui manque, savoir la gauche il est remplacé, lorsqu'elles disparaissent, par une

* Latreille, Pierre André, *Familles naturelles du règne animal*, Paris, 1825, pp. 90-103.

† Gray, John Edward. A synopsis of the genera of Reptiles and Amphibia with a description of some new species. *The Annals of Philosophy*, New. Ser., Vol. X. London, Sept., 1825, pp. 194-213.

artère dorsale. Les mâles n'ont point de verge. L'accouplement n'est que simulé, c'est-à-dire qu'il ne consiste que dans de simples embrassements, durant lesquels les mâles fécondent les oeufs, à mesure qu'ils sortent. Les petits naissent sans pattes, et subissent de véritables métamorphoses. La peau est toujours nue, et les ongles des pieds sont nuls ou rarement sensibles. Les oeufs sont réunis, et leur coque est membraneuse. Ces animaux vivent pour la plupart dans les eaux ou les lieux humides."

FEBRUARY 14, 1897.

G. BAUR.

CORRECTION CONCERNING MR. RHOADS' USE OF THE NAME *BASSARISCUS RAPTOR* (BAIRD).

In a recent paper in the Proceedings of the Biological Society of Washington* I quoted two statements, which were in part contradictory, from a paper by Mr. S. N. Rhoads respecting the proper name for the Oregon *Bassarisk*. In so doing I made a stupid blunder, for one of the statements in question was quoted by Mr. Rhoads, whose own remarks in this particular were not inconsistent.

C. HART MERRIAM.

SCIENTIFIC LITERATURE.

Report on Vital and Social Statistics in the United States at the Eleventh Census, 1890. Part II., Vital Statistics. Cities of 100,000 Population and Upward. By JOHN S. BILLINGS, M.D. Washington, 1896 [Received May, 1897], pp. 1181.

Now that statistical studies of variation and

*Proc. Biol. Soc. Wash., XI., 186, July 1, 1897.