Yucatan coast. The Cichlidæ are a family of fresh water fishes much resembling superficially our sunfishes (Centrarchidæ), and their occurrence in salt water had not been previously noted.

The discovery of a new species of catfish belonging to the genus *Conorhynchos,* in the Rio Usumacinta was also reported. No species of this genus was previously known from any point north of Brazil.

But the most interesting thing in connection with this bagre was the discovery that it has the habit of oral gestation, a curious habit not previously known to be possessed by *Conorhynchos,* though long known among species of South American and Ceylonese catfishes of the genus *Arius.*

When the eggs are laid they are taken up by the male catfish, who retains them in his mouth until they are hatched.

In the mouth of one of these catfish Mr. Nelson found thirty-nine eggs many of which readily rolled out when the fish was held up by the tail.

The eggs are quite large, measuring about three-quarters of an inch in diameter, and the embryos are well developed.

Another important discovery was the fact that *Girardinichthys innominatus* is ovoviviparous. This is a species of Pœciliidæ (killifishes) and was found by Dr. Rose to be an abundant inhabitant of the Rio Lerma. Its viviparity had not been noted before, nor was the species known to occur elsewhere than about the City of Mexico.

W. W. Cooke spoke on 'Some Untenable Theories of Migration,' stating that there were two theories as to the relative positions held by the individuals of a given species of bird in their winter home as compared with their positions during the breeding season. According to one theory the relative positions were the same, the birds moving southwards as one body, while according to the other theory the relative positions were reversed, those individuals which bred at the extreme north of the breeding range passing over the others, thus becoming the southernmost birds during the winter.

The Maryland yellow throat was given as an example of this latter method of migration, those individuals that breed farthest north going the farthest south in winter while the southern breeding birds remained almost stationary. But even here a complete reversal of position does not take place, for the intermediate breeding birds do not winter so far south as the southern breeder.

The red-winged blackbird, it was stated, did not follow either of the so-called rules and, in fact, each species seems to have a method of migration peculiar to itself, so that no general rule could be laid down that would cover even a large proportion of the different species. In most species, however, a reversal of position does occur during the early spring migration, but this condition does not last long.

F. A. LUCAS.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY.

AT the 141st meeting of the Society, at the University of North Carolina, on April 15, the following papers were read:

'Arsenic Pentachloride': Mr. H. H. BENNETT.

'Copper Deposits of North Carolina': Dr. J. H. PRATT.

'Price of Chemicals': Dr. CHAS. BASKERVILLE.

'Non-cellular Differentiation in Embryos': Dr. H. V. WILSON.

CHAS. BASKERVILLE,
Secretary.

DISCUSSION AND CORRESPONDENCE.

SCIENTIFIC TERMINOLOGY.

THE word 'ecology' is not to be found in recent English dictionaries, no doubt because such dictionaries do not profess to include every vagary of incorrect spelling that may find its way into print. But had Mr. Horace White looked up 'œcology,' he would have found it in the best dictionaries of the last fifteen years at any rate. He would not, however, have found the definition that is now given by you, but—to quote the 'Century Dictionary'—"The science of animal and vegetable economy; the study of the phenomena of the life-history of organisms, in their individual and reciprocal relations; the doctrine of the laws of animal and vegetable activities, as manifested in their modes of life. Thus, parasitism, socialism, and nest-building

are prominent in the scope of œcology." Or, as Cassell's 'Encyclopædic Dictionary' (1886) concisely puts it—'The knowledge of the sum of the relations of organisms to the surrounding outer world, etc.' The word was, I believe, coined by Haeckel in his 'Schöpfungsgeschichte,' and must have been introduced into English in the translation of that work, which, being only about thirty years ago, is in a sense 'post-Darwinian' as you suggest. Haeckel and biologists generally have used the word in the above sense, but of recent years the botanists have wrested, or at least restricted, the meaning of the term to the study of the associations of plants in such groups as alpine, sand-dune, and desert plants; and this is the sense intended on pp. 458, 459 of SCIENCE for March 21. In a word, they have used 'œcology' instead of 'œcological plant geography.' This is rather different from your editorial explanation, which seems to apply equally to what pedants call 'chorology.' Perhaps I may refer those who wish to be interested to a clear and concise paper 'On the Study of Plant Associations' by Mr. Robert Smith in *Natural Science,* for February, 1899, though he does not mention the word 'œcology.' The botanists have about as much right to alter the meaning of the word as they have to alter its spelling. But the deed is done, and perhaps that is why zoologists have tried to replace the word in its original sense by such expressions as 'bionomics' and 'ethology.'

On the general question of scientific terminology (which is a different thing from nomenclature) I take this opportunity of endorsing Mr. Very's sensible remarks, and of recalling two further arguments in favor of a technical terminology based on Greek or Latin. First, its universality, since the words, with but slight modifications to adopt them to the genius of each particular language, may be used whether one be writing Russian or Roumanian, French or English, Portuguese or even German. The more extended the adoption of this technical terminology, the more easily will students of one country be able to read the scientific publications of other countries.

A curious illustration of this is afforded by the very sentence which Mr. T. A. Rickard (SCIENCE, January 24, p. 137) quoted as an abuse of geological terminology, intelligible to 'a traveling dictionary,' but not to the miners for whom it was intended. Without pretensions to fall into either of these categories, I found that the only words I did not understand in the sentence were two adopted from the miners themselves, and far removed from Greek and Latin. Secondly, such a terminology lends itself to the formation of analogous terms, of series of similar terms, and of compounds defining or extending the root-term, in a way that can be rivaled by few modern languages, certainly not by Anglo-Saxon English.

The other side to the question was admirably put by Mr. Rickard in the article already quoted, although he does not seem to discriminate sufficiently between technical scientific writing and the popular exposition of science. Huxley is constantly held up as an example, and those who would like to know how to treat of technical subjects in simple language are referred to 'the course of lectures delivered by Huxley to working-men.' But if Mr. Rickard will turn to Huxley's original scientific writings, he will find technical terms quite as abundant there as in the works of less lucid authors; indeed, every zoologist knows that Huxley took his fair share in the coining of new words. If this be clearly recognized by the readers of Mr. Rickard's article they will do well to take heed to his warning. For there is a temptation, stronger perhaps than ever before, to clothe simple ideas in a far-fetched jargon, and thus to impose on the credulous with a show of learning that hides a poverty or a looseness of thought. That fatal human habit of substituting words for things is made still more easy; and we deceive ourselves, which is far worse than deceiving others. Lastly, a subject of fascinating interest that might attract to the study of science many an expanding mind, or that might win the sympathy of the man whose life-work lies elsewhere (a sympathy which men of science profess to long for), is rendered sterile and repellent by the unnecessary

use of unfamiliar terms. If I may without offense take a concrete instance, I would suggest that the author of the interesting note, 'Ecological Problems connected with Alpine Vegetation' (p. 459), might find it to the advantage of his subject, his audience and himself if he would rewrite his paper without using the words ecology (or œcology), phytogeography, morphology, floristic, edaphic, and xerophyte, or their derivatives.

F. A. BATHER.

BOTANICAL NOMENCLATURE.

TO THE EDITOR OF SCIENCE: It occurs to me after reading Dr. Cook's truly melancholy account of the condition of nomenclature in botany, to point out that the vast majority of the tribulations from which that nomenclature is suffering would be nonexistent if botanists had simply been willing to stand by the rules accepted by practically all zoologists. All the terrible examples he cites from Hernandez drop out of sight at once on the application of the rule that vernacular names are not to be accepted. Ninety-nine hundredths of the rest disappear with the fixation of 1758 ('Systema Naturæ,' Ed. X.) as the date beyond which resurrectionists shall not disturb the tombs.

It is true that all bodies of men contain a certain proportion of freaks and that some may be cited among zoologists, and a certain number of persons who have not made a study of nomenclature as an art, persist in injecting sentimental considerations into their argument and practice.

But these as a rule have not succeeded, in this country, in disturbing systematic work or diverting attention from the goal of stability which most zoologists aim at.

With an international committee to decide the fate of the residue of preposterous names which no rules can eliminate, I think a comparatively few years would put zoological nomenclature on a solid and permanent basis. And if botanists would 'hark back' to De Candolle and rigorously apply his rules, they also might see the dawn of a better day.

WM. H. DALL.

SMITHSONIAN INSTITUTION,
April 26, 1902.

THE WILL OF THE PEOPLE, NOT OF AN OLIGARCHY.

PROFESSOR WILLIAM T. SEDGWICK, of Boston, in an address published in SCIENCE, January 10, 1902, 'confesses with sorrow' the lack of success of efforts to prevent the study of 'temperance physiology' as now required in the public schools of this country.

He first offers in defense of his opposition the fact that Horace Mann, in 1842, did not include temperance physiology in his essay on 'The Study of Physiology in the Schools,' but he omits to add the significant accompanying fact of history, namely, that the recommendations of Horace Mann's essay that 'physiology should be taught in the schools,' aroused in Massachusetts such a storm of bitter opposition from the doctors and men of official science, that the existence of the Massachusetts State Board of Education and its secretary, Horace Mann, were saved by only a hair's breadth from being entirely legislated out of office. But time has vindicated Horace Mann's recommendations, while his opponents are forgotten.

Sixty years have passed and Massachusetts, as well as every state in the United States and the National Congress, has made physiology and hygiene, which latter includes the nature and effects of alcoholic drinks and other narcotics, a mandatory public school study. Professor Sedgwick is now objecting, not to this study, he says, but to the legal specifications which have made it a success. First he objects to its being taught 'to all pupils.' He does not tell when or by what class of pupils he would have it omitted. In our country 'all pupils' of to-day are destined to be the sovereign people of to-morrow. Hence, looked at from the standpoint of the state, it can not afford that one single pupil should not receive the utmost instruction on this subject needed to fit that pupil for a future sovereignty of intelligent sobriety.

From the standpoint of the individual, we ask, From whose child shall this educational method for the prevention of intemperance be withheld? Shall it be from the children of the poor, the rich, the foreign-born or the home-born? We are answered by the command of the greatest of all teachers that the supreme