phosphorus-delusion has twined itself round a saying quoted (rightly or wrongly) from Professor L. Agassiz, to the effect that fishermen are more intelligent than farmers because they eat so much fish, which contains so much phosphorus. All the facts may be doubted.

Mark Twain, in 1875, was perhaps more humorous than he realized, when he placed whales with fishes in this "Answer to Correspondents":

YOUNG AUTHOR.—Yes, Agassiz *does* recommend authors to eat fish, because the phosphorus in it makes brains. So far you are correct. But I can not help you to a decision about the amount you need to eat—at least, not with certainty. If the specimen composition you send is about your fair usual average, I should judge that perhaps a couple of whales would be all you would want for the present. Not the largest kind, but simply good, middling-sized whales.

"American humor is nearly as ephemeral as the flowers that bloom in the spring," writes Aldrich. "Each generation has its own crop, and that of 1860, were it to break into blossom at the present moment, would probably be left to fade upon the stem." But some, perhaps, would regret to lose what has here been recorded of Lowell. As to Mark Twain, he "is not to be classed with the fragile plants."

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AS STUDENTS UNDERSTAND IT

IN SCIENCE of August 29, Professor Ellison A. Smyth, Jr., gives an amusing series of student blunders and carelessness in relation to facts of biology. These plainly show that the persons in question knew nothing and cared less for the work required of them.

But does it not illustrate still more plainly "the dry rot of academic biology" and the misuse of the lecture system?

In his admirable autobiography, Professor Pupin criticizes the University of Cambridge for giving him "information" when he needed "contact." Information is what the usual "lecture courses" give, and what the conventional examination asks for, from which the average student gains nothing. Such information is, in general, mechanically given, imperfectly understood by the student, and soon dismissed from his mind.

The results of contact may be permanent. Only by direct relation to things as they are can any healthy teaching in biological subjects be attained. This was clearly shown by word and deed by Agassiz, more than fifty years ago. In our day, the impulse he gave is unfortunately dying out. It is not now the fashion, even for the teacher, to know anything in detail and with exactness. Some zoologists have never looked an animal in the face. A university should train men to observe accurately, to think for themselves and with enthusiasm. To give information is a relatively minor matter. The Sunday newspaper attends to this.

There are two main justifications for college lectures on science. One is to bring together in unified relation facts developed in the laboratory. The other is to develop enthusiasm, "to give inspiration," as the phrase is. To make such lectures worth while the teacher himself must have a degree of inspiration, with skill in making his words connect with the ideas already possessed by his audience.

The student who has handled a reptile or two will not write: "Reptiles have two or more pairs of limbs, such as the locust and others."

Nor will one who knows a bacillus at sight say: "Bacteria are used when vaccinating a person for disease; again they are used in spraying plants."

The fault in the matter of "senterpedes" and "bile ducks" does not lie with the teaching of spelling in the lower schools, but in the use in college of words which convey no actual meaning. Let us have contact as a basis for information. "It is not enough to tell a student that a magnet attracts iron, he must himself feel it pull."

DAVID STARR JORDAN
STANFORD UNIVERSITY

MAY I add to those choice "howlers" of Mr. Smyth's in SCIENCE of August 29 these two samples.

Mine, however, are not by any bewildered child under stress of examination, but from a printed sermon, written with "The Outlines of Science" open under the preacher's nose, by a doctor of divinity, a graduate of a New England seminary, who has been vice-president of his denominational educational society and trustee of four colleges.

The North Star . . . is said to be moving away from us with incredible rapidity, and yet is so far distant that it has seemed to change its relative position but a very little in a thousand years.

Another valuable feature of the spectroscope is its ability to measure the speed of light, even when the light is coming straight toward the instrument. The speed being determined, the distance of the star from which the rays come can be reckoned.

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LATIN AS AN INTERNATIONAL LANGUAGE

In reference to the letter of Professor Roland G. Kent about the use of Latin as an international auxiliary language, published in SCIENCE for June 20, 1924, pp. 554–555, may the attention of your readers be called again (see SCIENCE for April 11, 1919, Vol.

49, pp. 356–357) to "Interlingua" or "Latino sine flexione" proposed by Professor Peano of Turin University, president of the "Academia pro Interlingua"? Many believe that Interlingua has all advantages of Latin without its drawbacks. A quotation from one of the circulars of the "Academia" follows:

INTERLINGUA sive LATINO SINE FLEXIONE

Hodie quasi omni auctore scribe in proprio lingua nationale. Multitudine de linguas in labores de interesse commune ad toto humanitate constitue magno obstaculo ad progressu. Ex patiente studio de intelinguista resulta evidente quod linguas de Europa habe numeroso vocabulo commune. Vocabulario internationale es in quasi totalitate latino, graeco incluso, et es documento de historia de nostro civilizatione. Grammatica pote es reducto ad pauco aut nihil. Plure anno de studio non suffice pro posside latino aut alio lingua nationale, pauco hora suffice pro lingua internationale. Interlingua es intelligibile ad primo viso aut quasi.

Some pamphlets on the question are available for distribution to any of your readers interested in the subject.

A. FANTI

BUREAU OF STANDARDS,
WASHINGTON, D. C.

PALEOLITHIC AND NEOLITHIC OBJECTS FROM EUROPE

THE undersigned has been granted a sabbatical year and sailed for Europe on September 13. He expects to visit prehistoric and neolithic sites in France, Belgium, England and Italy. During his travels he will secure from archeologists, museums or collectors type specimens illustrating the life of primitive man in these various countries. Two or three museums have asked him to obtain for them small exhibits. Readers of SCIENCE or museum curators who may desire European objects will please communicate with him at the below address and his secretary will forward the communication.

WARREN K. MOOREHEAD

DEPARTMENT OF ARCHEOLOGY,
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SCIENTIFIC BOOKS

La Géologie Sismologique, Les Tremblements de Terre, Avec une préface de M. Pierre Termier, Membre de l'Institut. By COMTE FERNAND DE MONTESSUS DE BALLORE. Colin, Paris, 1924, pp. xiv and 488, 14 pls. and 114 figs.

THE posthumous appearance of the Count de Montessus's "La Géologie Sismologique" marks the completion of the seismologic trilogy, the first volume of which, "Seismic Geography," first saw the light in 1906 and was quickly followed by "Seismic Science" in 1907. With singleness of purpose the Count has pursued his studies throughout more than a score of years and was busy reading the proofs of this completing volume when he was stricken with his fatal illness. Undeterred, he continued to labor upon these proof sheets with his accustomed ardor until the very day of his death, nearly three weeks later.

Together these three massive volumes, well organized and written in a clear incisive style, comprise what is now known of the science of seismology. They stand alone in their field as a comprehensive work of generalization, and are likely long to remain so. When nearly a half century ago the Count was a resident of San Salvador on a military mission and first turned his attention to the earthquakes which so frequently racked that country, it could hardly be said that a science of seismology existed. The misguided centrum theory of earthquakes, due to Robert Mallet and dating from 1862, explained earthquakes as occasioned by an explosion of gases within a subterranean chamber (centrum), and the brilliant system of the Dutch physicist, Huyghens, had been cleverly made use of to follow the vibrations sent out from the supposed centrum. By many, however, earthquakes were still supposed to have their cause either in the atmosphere or in the changes of the moon. The part which the Count's own studies have had in dispelling all these erroneous notions is a dominating one.

In his "Seismic Geography" de Montessus showed on the basis of a comprehensive statistical study of the earthquakes of history, that about 95 per cent. of all known earthquakes have occurred within two great-circle belts, one circum-Pacific and the other intersecting the first at an angle of about 67 degrees and taking its course through Malaysia, the Mediterranean and the Caribbean. These zones de Montessus recognized as the Mesozoic geosynclines and as the belts of growing mountains of Tertiary and later periods. Such definite localization of earthquakes probably gave somewhat too great prominence to these belts and overemphasized a supposed immunity of the regions outside. Heavy earthquakes have indeed occurred in a few instances in the outside areas, such for example, as the great earthquake of the St. Lawrence Valley, February 5, 1663, the New Madrid earthquake of 1811 within the Lower Mississippi Valley, and the Charleston earthquake of 1886.

In his concluding volume, "Seismic Geology," the Count sets up a modified classification of earthquakes, apparently so as to include these neglected regions which have greater stability but lack entire immunity. He distinguishes two main classes: (I) glyptogenic