writers on science in Germany is as great as that of any other nation. I believe the following names, to which scores of others could be added, will bear out my statement: Georg Forster (the companion of Cook), A. von Humboldt, Liebig, Moleschott, Carl Vogt, Schleiden, Peschel, Helmholtz, Otto Ule (of Halle), Rossmaessler, Haeckel, Preyer, etc. Who is to be the judge as to a good German style, those who know the language as foreigners, or those who know it as natives? What would become of scientific criticism, if people may ridicule with impunity whatever differs from the standard to which they are accustomed? How does 'M.' suppose a rather long and involved English sentence, though correctly formed and considered elegant, sounds to a German who translates it literally? In a recent issue of *Science* (Jan. 7) another German sentence is quoted; and this, too, is neither a bad nor an obscure one, although it is not claimed that an advertisement—and such the sentence is—may be taken as a model of a lucid and graceful style. The number of poor writers in German is not great, in spite of all that has been written on the subject. The number of finished writers of peculiar excellence is probably as great in Germany as in France, England, or the United States.

C. A. EGGERT.

Iowa City, Io., Jan. 7.

The West Indian seal.

Since the publication of my article on this species in the last number of *Science* (ix. 35), Mr. F. W. True of the U. S. national museum has kindly called my attention to a paper on this subject by himself and Mr. F. A. Lucas, in the Smithsonian report for 1884 (part ii. pp. 331–335, plates i.–iii.), recently distributed, which I had not at that time seen. In this paper the species is positively referred to the genus Monachus, and the cranial characters are described and figured. The specimen forming the basis of this paper is the one presented to the U. S. national museum by Professor Poey, as stated in *Science*, iii. 752. This was a skin, containing the skull, of the specimen taken near Havana in 1883. The specimen is described as "a female, . . . apparently adult, though not aged." The description of the size and color, and the figures of the skull, however, show it to have been quite young, not more than two-thirds grown, and probably in its second year, the skull-sutures being still open, while in the adult, as in other seals, those of the cranium proper are wholly obliterated.

On the assumption that their specimen was adult, Messrs. True and Lucas believe that "the West Indian seal must be considerably smaller than M. albiventer" of the Mediterranean. The specimens obtained by Mr. Ward show that there is practically no difference in size or color between specimens of corresponding ages of the two species of subtropical seals. Many of the discrepancies in the proportions of the skull in the two forms, alluded to by True and Lucas, are clearly due, in large part at least, to the immaturity of their specimen of M. tropicalis. My largest male skulls even slightly exceed the measurements given by Cuvier for the Mediterranean species. I find the length of my adult male skeleton, measured along the curvature of its axis, to be seven and a half feet; measured in a straight line, seven and one-tenth feet, or 85 inches. The length of the stuffed skin of the Havana specimen, as given by True and Lucas, is only 53 inches. In view, however, of the widely separated habitats of the two forms, there is every probability of their specific distinctness, and adequate material doubtless would reveal numerous minor structural differences.

As compared with other species of the family Phocidae, the skeleton of M. tropicalis presents notable peculiarities, particularly in the form of the scapula, the pelvis, the proportions of the limb-bones, etc., as well as in the low position of the mandibular condyle, referred to by True and Lucas. The scapula, for example, is remarkably short and broad, the length to the breadth being as 16 to 28, both the anterior and posterior borders being greatly developed. The acromion process is well marked; but the spine is low and short, forming little more than a well-marked ridge, in comparison with its usual development in other phocids. The pelvis is remarkably short and broad: the thyroid foramina are fully half as broad as long. The femur is very short and thick, not longer than in Phoca vitulina, notwithstanding the much greater size of the animal, the same being true likewise of the pelvis. Throughout the skeleton the proportion of parts is rather exceptional, the fore-limbs being much more developed, relatively to the hind-limbs, than in the seals generally. As I stated in 1870 (*Bull. mus. comp. zoöl.*, ii. No. 1, p. 30), Monachus much more nearly approaches the Otariidae than does any other genus of the Phocidae, through its skeletal proportions and peculiarities. The animal is in form very robust. The bones are thick and heavy, with the apophyses of the vertebrae strongly developed. Further details, however, must await the appearance of my illustrated memoir on this species, now in preparation for early publication in the Bulletin of the American museum of natural history.

To Messrs. True and Lucas is due the credit of first making known, in their paper above cited, the cranial characters of the West Indian seal, and of confirming its reference to the genus Monachus; and I much regret not having seen their valuable contribution when I penned my former notice of the species. While the 'Report' containing their paper bears date '1885,' it appears not to have been generally distributed till some time in December, 1886.

J. A. ALLEN.

New York, Jan. 14.

On hybrid dogs.

If my memory serves me correctly, I think it was Dr. Coues who pointed out the fact somewhere, in one of his works, that he had personally known of cases of fertile crosses having taken place between the coyoté (Canis latrans) and that species of semi-domesticated dog found with nearly all the Indian tribes of this country. His instances were cited, however, I believe, for the Sioux camps of the Indian agencies of certain parts of Dakota.

Now, a year ago there came under my observation here an interesting case of this kind, the occurrence having taken place at Zuñi, in south-western New Mexico. Zuñian Indians have many varieties of wolfish-looking dogs at their pueblo, while coyotés are always found prowling about on the surrounding prairies. Such circumstances as these, granting that these animals will cross, are as favorable as any we could imagine; for the pueblo, with the ends of its streets leading in the majority of instances directly out upon the prairie, affords the opportunity, not

only for the dogs to run out upon it at night, but the coyotés, long since accustomed to the sight of the pueblo and all that is in it, to approach with less suspicion than they would even about an Indian camp. Moreover, some of these Zuñian dogs have very much the appearance and behavior of the coyotés themselves, and quite as much cunning in some instances. Among the rarer varieties of the former we sometimes find a sheep-dog of apparently the same breed of animal often seen in certain parts of the eastern states. I refer to the black-and-tan variety, with the shaggy coat, and the tan-spots, one over each eye. The trader at Zuñi, an observing and intelligent Englishman, has long owned one of this latter kind, — a bitch of excellent qualities, — and it is from this gentleman that I came into possession of the following account. He tells me that a little over three and a half years ago, the opportunity was afforded him to become personally cognizant of the fact that this shepherd-dog bitch of his was lined by a large male coyoté one evening just beyond the limits of the pueblo. In due time she gave birth to four male pups, that looked curiously like young coyotés from the hour they were born. When I came to Wingate here, all four of these dogs were fully grown, and were owned by different parties at the garrison, and I had excellent opportunities to study them. They all very much resembled each other, and the entire progeny are the very exemplification of what we might easily imagine the offspring of such a parentage would be. Taking any one of them as an example, it is to be noted that the animal has a form somewhat heavier than a coyoté, and yet more slender and agile than a shepherd-dog. As we would naturally expect, its pelage is rather long and shaggy, with a handsome flag to its tail. In color it is a fine stone gray, inclining to blackish on the flanks and sides; the spots are absent from over the eyes. The ears have more of the form of the coyoté's than they have of the ears of the mother; while the fore part of the face, and the muzzle, more nearly approach that of a shepherd-dog. One of the most interesting features of it all is to hear one of them bark; for those who may be familiar with the despicable howl of the prairie-wolf can here have the opportunity to fully appreciate how much that kind of music can be improved by being semi-modified by such crossing in stock. The yelp becomes softened, and the more intelligent expressions of the bark are introduced, though in the present case these seem to be about equally divided in the voices of these hybrids.

When out of the garrison, I have observed much in their behavior that reminds me of the coyoté, more than it does of the dog. They run and trot like a coyoté; and when off at a distance they have a way of standing sidewise as motionless as a statue, and regarding you; while at such times they keep their two fore-limbs together, as well as the hinder ones. Such a position is very commonly assumed by the prairie-wolf, and may be said to be a direct lateral view of the animal, with its face looking towards you.

Space will not permit me to enter upon the many little interesting traits of these animals, which plainly are due to the crossing of the parent stock, and have been inherited by the issue.

It is my present aim to purchase one of these animals, if possible, with the view of securing its skeleton, more especially its skull. This latter would undoubtedly make an interesting thing to compare with Huxley's valuable work on the skulls of the Canidae. I have collected a fine series of the skulls of the coyotés, and have them in my possession at the present writing. R. W. SHUFELDT.

Fort Wingate, N. Mex., Jan. 11.

To authors of text-books on physics.

The definition of the coefficient of elasticity, given by Professor Baker on p. 34 of the current volume, is vitally defective because the unit of section is omitted. It reads, "The coefficient of elasticity may be defined as the force which would double the length of a bar." According to this, if the section of one bar were twice that of another, all other things being equal, the coefficient of elasticity of the former would be double that of the latter, which is not true. A student might further object that solids cannot be elongated to double their length, nor liquids be compressed to half their volume, or, if they could, the coefficient would not remain constant during the operation. Strictly speaking, the coefficient of elasticity is a *rate*, and may be defined as the rate of change of the stress per unit of section to that of the elongation per unit of length. This is true for the incipient elongation due to an incipient stress. If it be *assumed* that the section of the bar remains uniform and the elasticity remains perfect during the elongation, then it will be true that the coefficient of elasticity equals the force which would double the length of a bar whose cross-section is unity. DEVOLSON WOOD.

Hoboken, N.J., Jan. 15.

H. Allyne Nicholson.

In answer to a letter of condolence written in consequence of the press despatches announcing the death of Prof. H. Allyne Nicholson, Dr. C. A. White has received a letter from Professor Nicholson himself, saying that he is not dead, but alive and well.

If the above has not been announced, it may be of interest to the readers of *Science*.

EDW. J. NOLAN.

Philadelphia, Jan. 17.

Abbott's Greek reader.

I like the freshness and independence of your critical comments. But you object to the publishers of Abbott's 'Greek reader' binding the notes separately from the text. 'Much' may be 'lost in convenience,' as you say, but some of the best instructors in the classics object to notes in the classroom, in the hands of the student. They are entirely too convenient, a great hinderance to the best mental discipline, and a temptation to neglect thorough preparation beforehand. E. T. JEFFERS.

Lincoln univ., Chester co., Penn., Dec. 29.

Advertising for professors.

Science and education for Dec. 24, on p. 65, speaks of advertising for professors.

The University of Mississippi recently advertised. There were five vacancies and five hundred and twenty-seven applications! M. W. EASTON.