bedding, or nearly so. Besides quartz and tourmaline, they carry iron and titanium minerals (magnetite, hematite, rutile, and anatase), amorphous chloro-phosphates of some of the rarer elements (cerium, lanthanum, didymium, etc.), and, almost certainly, euclase.

The observations at this place exclude completely the idea of peridotite or other eruptive rocks. The diamond at Sao Joao da Chapada, and presumably at other Brazilian localities, is a *vein mineral*, and the conditions of its genesis (unless we admit the hypothesis of a subsequent deposition of carbon, which is uncalled for by any of the observations thus far made) must have been such as were favorable to the segregation of iron and titanium oxides, phosphates of rare elements, and certain silicates, such as tourmaline and presumably topaz and euclase. The hypothesis of a genesis through the reaction of eruptive masses on carbonaceous schists is here as inadmissible as would be that of a vein formation for the South African mines. If the origin of the carbon is to be sought in the rocks traversed by the eruptive or vein masses containing it, it is not without interest to mention that the schists of the veins in which the Sao Joao mine is excavated frequently contain graphite, though at that particular locality they are too much decomposed to enable one to determine whether it occurs there or not. It may be stated, that, in the other diamantiferous regions of Bahia, group 2 occurs either at the mines or in sufficient proximity to have furnished the diamonds. In the Bahia fields the precious stones appear to have come mainly from a conglomerate which, as it lies in the prolongation of the same range, is presumably identical with group 3 above described, and, like it, rests on a base of unctuous schists, itacolumite and itabirite. The Goyaz fields and those of Bagagen in western Minas seem to be similar to those of Diamantina, though perhaps lacking the upper quartzite. To the west of Diamantina, in the San Francisco valley, diamonds are washed from the *débris* of a conglomerate presumably of upper Silurian or Devonian age, but containing pebbles of the Diamantina rocks. In the province of Paraná the immediate origin is in a Devonian conglomerate, and this is also apparently the case with the diamantiferous placers of the province of Matto Grosso.

The Brazilian and African diamond-fields thus indicate two very distinct modes of occurrence and genesis for the gem, — one as a vein mineral accompanying oxides, silicates, and phosphates; the other as an accessory element in an eruptive rock. In the last number of the *Bulletin de la Société géologigue de France*, M. Chaper presents a third mode of occurrence as the result of his observations in an Indian diamond-field. He satisfied himself that the gem occurs there, along with sapphires and rubies, in a decomposed pegmatite, having taken out two diamonds, two sapphires, and three rubies from an excavation made in that material. The circumstance that all these stones were found during the preliminary work with pick and shovel, whereas nothing was found in the washing, would, notwithstanding M. Chaper's confidence that no deception was practised, seem to the practical diamond-miner to be extremely suggestive of *salting* very inartistically done. The occurrence of remnants of a sedimentary formation of a conglomeritic character in the neighborhood of the old washing examined suggests another explanation for the occurrence of the gem in placers resting on a bottom of granitic rocks.

ORVILLE A. DERBY.

Museum nacional, Rio de Janeiro,
Dec. 16.

A German sentence.

Will you allow me a brief reference to a remark of one of your contributors? 'M.' quotes the following German sentence by 'one of the most distinguished German zoölogists:' —

"Man darf für wahrscheinlich halten, dass die so sehr wechselnde Gestalt und Ausbildung der 'Tastborsten,' nach der Art des Thieres und den Körpergegenden, noch bestimmten Nebenzwecken zu dienen hat, ohne dass wir uns davon Rechenschaft zu geben vermögen."

In the original quotation the commas after 'Tastborsten' and before 'noch,' etc., are omitted. 'M.' quotes this as a sample of sentences which prove that German scientific writers despise the 'French qualities of grace and lucidity.'

He goes further than this. He is quite convinced that the scientific men in Germany show an 'absence of the literary sense,' though he admits there are some exceptions.

It seems to me that if 'M.' wished to furnish a proof for his assertion, he ought to have chosen a different sentence. Evidently every thing depends upon the reader for whom the sentence was intended. If the author wrote for children, his sentence was objectionable; but, if he wrote for educated persons, the sentence must be pronounced just as clear, lucid, and elegant in German as any similar sentence might be in French. 'M.' assumes to judge of the literary qualifications of people who use a language with which he himself is less familiar than he is with French and English; a language, moreover, which greatly differs in its laws of construction from French and English. Supposing he should apply his French or English standard to a similar Latin sentence by one of the recognized masters of Latin style, would the difficulty of understanding its meaning justify a person who is not perfectly at home in that language to condemn the form of the sentence?

It seems to me 'M.'s' reasoning is the reverse of 'scientific.' It looks very much like 'jumping at conclusions.' 'M.' goes further than this. He remarks on the lack of German inventiveness. But do the Germans lack inventors? They are inferior to the Americans in invention of labor-saving machinery, because they have not hitherto felt the need of it as much as Americans in their thinly peopled country.

But let us ask who invented watches, lithography, the original hand-press for printing, and the later revolving press, for the first time used in printing the London *Times*, which created a new era in newspaper printing? Who has a greater claim to the invention of the electric telegraph than Gauss of Göttingen, or Steinheil of München? Where are there more practical inventors than Krupp and the men that have made his steel-works famous all over the world? And how about Siemens (the two elder brothers), Halske, Schaefer, Budenberg, Gruson, and scores of others? Germany, so long disunited, could not afford a patent law like our own until quite recently: hence many of her inventors went to England, France, and some to this country.

There is some truth in 'M.'s' remark about the bad style of many German scientific writers, but I venture the assertion that the number of really fine

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