

elaborate analyses of coals, we find that in the coal-pit sections the names of characteristic fossils have found their way into the text, that notices are given, not merely of the economically useful minerals, but of the geological formations which have no special industrial value,—Silurian, Drift, River-terraces, &c. The volume contains also meteorological tables and notices of recent geological changes. But by far the most interesting contribution to science in its pages is a "Report on the Wyandotte Cave and its Fauna," contributed by Prof. E. D. Cope, with an account of the geology of the cave, by Prof. Cox himself. This remarkable cavern runs through the "sub-carboniferous" limestone in numerous branches which are said to have a total length of twenty-two miles, and greatly to excel the more famous Mammoth cave of Kentucky in the number and beauty of their stalactites. It contains a peculiar fauna, numbering at least sixteen species, which show a general resemblance to those of the latter cave, and include one species of blind fish (*Amblyopsis spelæus*) which lives in the subterranean waters of Kentucky.

In these Reports each county is described separately, so that the same geological facts require to be frequently repeated. This is, doubtless, the most useful arrangement for those for whom the volumes are primarily intended. But it would be a service to other readers if a good table of contents were given, and if the index were made much fuller, especially in matters of general geological interest. The volumes are eminently praiseworthy, and we hope to see them followed, before long, by a good map and a general geological Report of the whole State of Indiana.

A. G.

#### INTELLECT OF PORPOISES

A SINGLE visit to the Brighton Aquarium would suffice to convince a recent correspondent, Mr. Mattieu Williams, that the intellect of the porpoise, as foreshadowed by its convoluted brain, exceeds, beyond comparison, that of the cod-fish or any other representatives of the piscine race. Of the two specimens now inhabiting the largest tank in the building, over one hundred feet long, the first-comer so readily accommodated itself to its altered conditions, that on the second day it took its food, smelts and sprats, from its keeper's hand; and has continued to do so ever since. The later arrival was, at first, less sociably inclined; but both have latterly become equally tame, and frequently, while receiving fish from my hand with the gentleness of pet dogs, have permitted me to pat and stroke their slippery india-rubber-like backs.

During feeding-time it is amusing to watch the avidity with which these porpoises take their food; one, the more active of the two, usually securing the lion's share, and displaying marked sagacity by frequently snatching a second or third morsel before disposing of the first.

The keeper in charge of these interesting animals is now in the habit of summoning them to their meals by the call of a whistle; his approaching footsteps, even, cause great excitement in their movements, and recent experiments have proved them to be acutely sensitive to the vibrations of sound. By the physiologist a more pleasing spectacle can scarcely be witnessed than the graceful actions of these cetacea, as they swiftly pursue their course up and down their spacious tank, ascending to the surface of the water at intervals of fifteen or twenty seconds, to breathe, each inspiration being accompanied by a spasmodic sob-like sound, produced by the rush of air as a breath is rapidly liberated and inspired through the single central blow-hole.

Onward progress is effected in these animals, as in all other cetacea, exclusively by the action of the horizontal caudal fin; the development of muscle at the "wrist" of the tail on which this action depends being enormous and

plainly visible externally; the pectorals are devoted principally to the purpose of steering the creature to the right or left, aiding it also in rising to the surface of the water.

The fact alone of the porpoise suckling and evincing much maternal solicitude for the welfare of its young indicates the superiority of its position in the zoological scale above that of the other representatives of the finny tribe; and to this, in addition to the remarks just made upon their sagacity when feeding, many other facts may be cited, pointing in the same direction. The curiosity attributed to these creatures, as illustrated by the experiences of Mr. Mattieu Williams, receives ample confirmation from their habits in confinement. A new arrival is at once subjected to the most importunate attention, and, advancing from familiarity to contempt, if disapproved of, soon becomes the object of attack and persecution. A few dog-fish, *Acanthias* and *Mustelus*, three or four feet long, placed in the same tank, soon fell victims to their tyranny, the porpoises seizing them by their tails, and swimming off with and shaking them in a manner scarcely conducive to their comfort or dignified appearance, reminding the spectator of a large dog worrying a rat. The fine sturgeon, six feet long, now sharing an adjoining tank with the cod, was first placed with these animals, but in a short time was so persecuted that for safety it had to be removed; while to this day the lacerated condition of its tail bears witness to the pertinacious attention of its former comrades. Some large skate (*Raja clavata* and *maculata*), while they maintained their usual habit of lying sluggishly on the floor of the tank, escaped molestation; but no sooner did these fish display any unwonted activity than the porpoises were upon them, and, making a convenient handle of their characteristic attenuated tails, worried them incessantly. On one occasion I witnessed the two *Cetacea* acting evidently in concert against one of these unwieldy fish, the latter swimming close to the top of the water, and seeking momentary respite from its relentless enemies, by lifting its unfortunate caudal appendage high above its surface. It need scarcely be remarked that the skate were removed before further mischief could be done, leaving the porpoises, with the exception of a few conger, which during the day-time mostly lie hidden in the crevices of the rock-work, turtles, and a huge monk-fish (*Rhina squatina*) sole occupants of this colossal tank.

While far behind the porpoises in display of intellect, it may be hereafter shown that the representatives of the *Gadidae*, or cod-family, are by no means the least intelligent of fish.

W. SAVILLE KENT

#### AN INTERNATIONAL COINAGE

A PROPOSITION has been made for holding a private conference for an International Coinage at Vienna in the course of next September, and to consider more particularly the following points:—

1. The question of Valuation.
2. The principal Coins.
3. The Unit of Value, and its Sub-divisions.
4. The charge for Coining, the rate of alloy, and other technical questions.
5. The preservation of the full value of the principal Coins in circulation, and the coining of others.
6. The different modes of introducing a new money-system.

The prime mover and most active agent in the promotion of this conference is Mr. A. Eggers, Consul in Bremen. The declared object is to bring together a limited number of semi-official or private representatives of the various countries, with a view of a full discussion of the subject; and a committee has been constituted consisting of several French and German gentlemen who are interested in the question of the International Coinage.

Mr. Eggers has recently paid a visit to this country with a view of inducing some of the English advocates of an International Coinage to take part in the proposed conference. It was suggested by Mr. J. B. Smith, M.P., that a private meeting should be held to enable Mr. Eggers to explain his views, and this meeting was accordingly held on the 25th ult. at the Standards Office, 7, Old Palace Yard: But few persons, however, attended; amongst them were Dr. Leone Levi and Mr. Hendricks; Mr. J. B. Smith was himself absent from illness.

The principal propositions of Mr. Eggers, which seem to be fully explained in his printed pamphlet, entitled "Die Geldreform," published at Berlin, were—

1. That the International Coins should be of a round metric weight.
2. As common units of value, a dollar of fine gold  $1\frac{1}{2}$  gramme, and a coin of 25 grammes of silver  $\frac{8}{10}$  fine.
3. As nearly corresponding with the pound sterling, a coin of 5 dollars, or a new sovereign of  $7\frac{1}{2}$  grammes of fine gold.

And he suggested that such a gold dollar and sovereign might be first introduced in Canada, as very nearly agreeing in value with the American gold coinage.

The objections raised against these propositions were, first, that if the fine gold in the dollar weighed  $1\frac{1}{2}$  grammes, the addition of  $\frac{1}{3}$  alloy would make the actual weight of the dollar  $1\frac{2}{3}$  grammes, which is not a round metric weight. There would be the same result with the new sovereign of  $7\frac{1}{2}$  grammes fine gold, as  $\frac{1}{3}$  alloy would make the actual weight  $8\frac{1}{3}$  grammes.

A far more serious objection was that the difference between the  $7\frac{1}{2}$  gramme fine gold in the proposed new sovereign, and 7.32238 grammes in the existing sovereign, equal to 0.17762 grammes, would increase the value of the sovereign more than  $5\frac{1}{2}\%$ , which was quite inadmissible.

The question of a silver International Coin was not discussed, the general opinion being that the difficulties of agreeing upon a single gold unit were already sufficiently great, and that until they could be overcome, it was almost hopeless to expect that any International Coinage could be established. The adoption in the German Empire of the 20-mark piece as the gold coin unit, and containing  $5\frac{1}{4}\%$  less in value of fine gold than the sovereign, together with the very large amount of the new German gold coinage, appears to offer at the present time an insuperable obstacle to the common adoption of an International Coinage, however desirable it may be.

#### NOTES

At the meeting of the Paris Academy of Sciences on the 7th instant, three elections to the Section of Anatomy and Zoology took place. The places to be filled were those of Mr. Agassiz, elected a Foreign Associate, and MM. Pictet and Pouchet, deceased. In the first case M. Steenstrup obtained 38 votes and Mr. Darwin 6; in the second Mr. Dana obtained 35 and Mr. Darwin 12; in the third Dr. Carpenter obtained 35, Mr. Darwin 12, and Mr. Huxley 1 vote. Messrs. Steenstrup, Dana, and Carpenter were therefore declared duly elected.

THE Professorship of Anatomy at King's College, London, rendered vacant by the death of Mr. Partridge, was refilled on Friday last by the appointment of Dr. Curnow, a former student of the College, whose medical career at the University of London has been one of the most brilliant on record. After having obtained the scholarships and gold medals in Anatomy and Materia Medica at the first M.B., he was equally successful at the second M.B., gaining the same honours in Medicine and Obstetric Medicine. At the M.D. examination Prof. Curnow also obtained the gold medal. We cannot but think that the Council of

King's College have made a judicious selection, and have gracefully recognised talent in one of their most promising pupils.

THE Royal College of Science for Ireland, in connection with the Science and Art Department, South Kensington, has conferred the diploma of associate on the following gentlemen:— Faculty of Engineering: G. P. Culverwell, E. P. Culverwell, R. W. Frazer, and E. Barrington. Faculty of Manufactures: Thomas Abbott. The two Royal Scholarships were awarded to John O. Hicks and James Patterson. The silver medal to F. A. Caldwell.

"It never rains but it pours." Prof. Agassiz, as representing the Anderson Natural History School, of Penikese Island, has been presented by Mr. C. W. Galloupe, of Swampscott, with a handsome yacht of 80 tons, estimated to cost 20,000 dollars. The vessel will be used for dredging, temperature soundings, &c., along the coast in the neighbourhood of the island; its presentation makes perfectly complete the apparatus for practically training the students of the finest natural history school in the world.

AMONG the "Innocents" slaughtered yesterday in the House of Commons we are sorry to notice the Weights and Measures (Metric System) Bill, which was withdrawn by Sir Thomas Bazley, in the absence of Mr. J. B. Smith. No notice had been given of this step, which naturally drew forth some protests.

THE Report of the College of Physical Science of Newcastle-upon-Tyne, at the end of the second year of its existence, is altogether satisfactory. The classes have been augmented from four to eleven, and the number of students shows a considerable increase over the previous session; the attendance at the evening classes is also satisfactory. The number of students attending instruction in practical chemistry has been so great as to render it necessary to make arrangements for materially increasing the laboratory accommodation. The Council are very sanguine of the success of the college, though they feel the necessity of founding more professorships and obtaining more accommodation, and think that the wealthy manufacturers and merchants of Newcastle and the North of England ought to render much more assistance than they do. We hope the wealthy manufacturers of the North will see it to be their duty, as it certainly is their interest to contribute to the success of such an institution in their midst. It would certainly be a disgrace to Newcastle if its Science College should, in the midst of enormous wealth, not attain the greatest possible measure of success. There is no reason why this institution should not be made as successful as Owens College, Manchester, and we hope that ere long similar institutions will be established in all the large towns of England. It would be a pity that those who are concerned in the management of the Newcastle institution should mar its success by any antiquated restrictions as to a knowledge of ancient languages by those who have shown themselves deserving of a degree in science.

WE regret to announce the death of the eminent engineer, Mr. J. R. McClean, M.P., F.R.S.

OUR readers have no doubt heard of the recent miserable thefts of living Italian coral from the Crystal Palace Aquarium. It is really difficult to find words to characterise the despicable meanness of the act. Mr. Lloyd says that these things are never taken when working people are present. Meantime the public must suffer for the act of an individual, for it has been thought necessary so to secure the corals under lock and key, that they cannot be so well seen as before, when in open tanks. We can only hope that the petty thief will be discovered; happily such acts are rare in our places of public resort.