

Atlantic trip, and would involve neither hardship nor danger. During the latter part of July and throughout the whole of August the coast is mainly free of ice, and even the passage of the much-dreaded Melville Bay can very generally be effected during this season of the year without danger from a "nip," and frequently with not so much as an acre of ice to interfere with the traveller's journey. Once beyond Cape York, the free North Water opens up a passage to the 79th or the 80th parallel of latitude, or to within some 700 miles of the Pole. In the course of such a trip the traveller would see much that is novel and interesting, much that is grandly picturesque, and still more that is striking in its deviation from the rest of the earth. A country inhabited by a race of people so remarkable as are the Eskimos is always worthy of a visit, especially at a time when a greatly increasing interest in the science is fostering the study of ethnology. But merely in the contemplation of the forms of the almost endless number of icebergs, the vacation tourist would probably consider himself amply repaid for a journey to this easily-reached land of the midnight sun, with its almost numberless glaciers, its sky-splitting mountains, and a boundless ice-cap. The artist, too, would find abundant suggestion for his brush and palette.

PROF. AUGUST WEISMANN'S "Amphimixis: oder, Die Vermischung der Individuen," has been published at Jena by Herr Gustav Fischer. An English translation, we believe, will shortly be issued.

A FRENCH translation—edited by Dr. H. de Varigny—of Weismann's "Essays on Heredity" (Reinwald) has been issued in Paris.

THE third volume of Dr. McCook's "American Spiders and their Spinning Work," will be ready for delivery in the coming spring. The numerous lithographic plates are many of them prepared and in the colourists' hands. The cost of preparing the numerous engravings and plates has greatly exceeded the expectations of the author (who is also the publisher).

DR. ADOLF FRITZE contributes to the *Mittheilungen der Deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens*, in Tokio (Heft 46) a valuable paper on the fauna of Yezo in comparison with that of the rest of Japan. He does not, of course, profess to give a complete account of the subject; but the natural history of Yezo has hitherto been so imperfectly investigated that his work will be very welcome to zoologists.

MR. ROBERT E. C. STEARNS gives in the Proceedings of the U.S. National Museum (vol. xiv., pp. 307-335), a valuable list of shells collected on the west coast of South America, principally between latitudes 7° 30' S., and 8° 49' N., by Dr. W. H. Jones, Surgeon, U.S. Navy. This collection, with various other treasures, was presented to the National Museum in 1884; but until lately Mr. Stearns had not an opportunity of preparing a list. A great part of the shells were picked up on the beaches, and in poor condition; but our knowledge of the distribution of west South American species is so limited that the collection, Mr. Stearns says, has its special value for the information it furnishes on this point.

THE following science lectures will be given at the Royal Victoria Hall on Tuesday evenings during December:—December 1, "North Wales," by A. Hilliard Atteridge; 8, "The Ways in which Animals hide Themselves," by E. B. Poulton; 15, "Old Stones," by H. G. Seeley.

At the meeting of the Chemical Society on Thursday last some further particulars were given by Mr. Mond concerning his work in conjunction with Dr. Langer upon iron carbonyl. They have succeeded in isolating two distinct compounds of iron and carbon monoxide. One of them is a liquid of the composition $\text{Fe}(\text{CO})_5$, to which the name ferro penta-carbonyl is

given. The other is a solid corresponding to the formula $\text{Fe}_2(\text{CO})_7$, and is termed di-ferro hepta-carbonyl. Liquid ferro penta-carbonyl is obtained by heating finely-divided iron, obtained by reduction of ferrous oxalate, in a stream of carbon monoxide. The operation is a very slow one, 100 grams of metallic iron yielding one gram of the liquid in twenty-four hours. Ferro penta-carbonyl is a light amber-coloured liquid, which may be distilled without decomposition. It boils constantly at $102^{\circ}\cdot 8$ C. Its specific gravity, compared with water at 18° , is $1\cdot 44$. It solidifies at -21° , forming yellow acicular crystals. Its vapour density has been determined, the number obtained being 6.5, agreeing fairly well with the value 6.7 calculated for $\text{Fe}(\text{CO})_5$. The liquid is quite stable in the dark, but when exposed to light an important change occurs. Gold-coloured crystals rapidly form in it, which upon analysis are found to consist of a second iron carbonyl, the di-ferro hepta-carbonyl $\text{Fe}_2(\text{CO})_7$. These crystals are almost insoluble in the ordinary solvents. When warmed to 80° , however, they decompose, the products of decomposition being the penta-carbonyl metallic iron, and carbon monoxide. It appears, therefore, that iron does not exactly resemble nickel in its behaviour with carbon monoxide, for the carbonyl compound of the latter metal, it will be remembered, possesses the composition $\text{Ni}(\text{CO})_4$.

A NOTE upon the products of oxidation of nickel carbonyl is contributed by M. Berthelot to the current number of the *Comptes rendus*. M. Berthelot states that nickel carbonyl behaves towards oxygen in a manner somewhat similar to an organic radicle. The products of its spontaneous oxidation do not consist entirely of the oxides of nickel and carbon. The liquid may be preserved in a glass vessel under a layer of water without change so long as air is excluded; but as soon as air is admitted, the compound slowly oxidizes, and a quantity of apple-green hydrated oxide of nickel free from carbon is deposited. At the same time a portion of the nickel carbonyl volatilizes and oxidizes in the air, forming a white cloud which deposits upon all the objects in the neighbourhood. M. Berthelot has succeeded in collecting a considerable quantity of this white deposit, and has subjected it to analysis. He considers it to be the hydrate of the oxide of an organic radicle containing nickel. The numbers obtained from the analysis agree with the formula $\text{C}_2\text{O}_3\text{Ni}_3 \cdot 10\text{H}_2\text{O}$, but as it appears likely that the preparation contained more or less nickel hydrate this formula is not considered final. M. Berthelot is of opinion that the substance probably contains an organo-nickel compound of the composition C_2ONi , belonging to a type derived from ethylene. He is continuing the study of this interesting substance.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀) from India, presented by Mr. J. Robinson; a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mrs. K. Clark-Ourry; a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Captain J. F. C. Hamilton; two Ourang-outangs (*Simia satyrus* ♂ ♂) from Borneo, a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, four — Pelicans (*Pelecanus* sp. inc.) from India, deposited; a Bronze-winged Pigeon (*Phaps chalcoptera* ♂) from Australia, a Blood-breasted Pigeon (*Phlogothanas cruentata* ♀) from the Philippine Islands, purchased.

OUR ASTRONOMICAL COLUMN.

DETERMINATION OF THE SOLAR PARALLAX.—A. Auwers, in *Astronomische Nachrichten* (No. 3066), gives the results obtained in the determination of the solar parallax from the heliometer observations made by the German Transit of Venus Expedition, in the years 1874 and 1882. The number of measurements taken amounted to 754, of which 308 were

made from the 1874, and the remaining 446 from the 1882 transit. Taking each series of measurements of each transit separately, and applying the corrections of Leverrier's tables,

Transit of 1874 Dec. 8	$\Delta\alpha = + 4''.69$	$\Delta\delta = + 2''.30$
„ 1882 Dec. 6	+ 9''.13	+ 1''.99

he obtains the following values for the parallax—

Transit of 1874	$\pi = 8''.873$
„ 1882	$\pi = 8''.883$

Both the above numbers are subject to the mean errors $\pm 0''.062$ and $\pm 0''.037$ respectively, and are computed in the first case from 307, and in the second from 444 measurements.

By taking now the two series together, and finding the most probable number, he obtains the following result subject to the two adjoined errors—

$\pi = 8''.880$
Mean error = $\pm 0''.032$
Probable error = $\pm 0''.022$

A comparison of the above results with those of other observers, taking the transits of 1874 and 1882, may be gathered from the following list—

Transit 1874.		Transit 1882.	
Harkness	8''.888	Auwers	8''.883
Todd	8''.883	Cornu	8''.86
French measures ...	8''.88	Harkness	8''.842
Stone	8''.88	Faye	8''.813
Auwers	8''.873	Todd	8''.803
Tupman	8''.81		
Airy	8''.76		

PHOTOMETRIC OBSERVATIONS.—The *Publications of the Potsdam Astro-Physical Observatory*, No. 27, contains a series of photometric measurements made by Dr. Müller at a station on the Sântis, situated 2500 metres above sea-level, with a Zollner's photometer. The observations extend over two months, and they show that the form of the curve of extinction from the zenith to a point very near the horizon is satisfactorily represented by Laplace's Theory. But a comparison of the curves calculated separately for the various days of observation shows considerable differences, which approach and even exceed 0.4 of a magnitude near the horizon. The superiority of the Sântis station over Potsdam as regards conditions of atmospheric transparency is very striking. For a star in passing from the zenith to an altitude of about 2° has its light diminished nearly by a whole magnitude more in the plain than on the top of the mountain. From the observations, according to Laplace's Theory, the loss of light produced by the atmosphere in the zenith at Sântis is about 12 per cent. ; or, in other words, a star viewed from a point above the atmosphere would appear brighter by about 0.14 of a magnitude. Since the corresponding value for Potsdam is 0.2 magnitude, it follows that the absorption produced by a stratum of atmosphere between sea-level and a height of 2500 metres amounts to 0.06 magnitude. Before this value, however, can be accepted as definite, simultaneous observations of stellar magnitudes must be made at stations lying closer together than the two between which the comparison is instituted.

THE PAMIRS.

AT the meeting of the Royal Geographical Society on Monday the paper read was on a recent journey across the Pamir by Mr. and Mrs. Littledale. In introducing the paper, Mr. Douglas Freshfield made some remarks on the subject generally.

The Pamir or Pamirs (Mr. Freshfield said)—for Pamir is a generic term, the different strips of tableland are distinguished by separate names—is a vast tableland averaging 12,000 feet in height and 200 miles in length by 120 to 150 miles in breadth, ringed by a rough horseshoe of mountain ranges, and intersected by snowy ridges and shallow trenches that deepen westwards, where the streams of the Oxus descend towards Bokhara. The numerous photographs taken by Mr. Littledale exhibit a characteristic type of landscape:—tent-shaped, glacier-coated ridges, bare heights naked of verdure and shorn of forests by

the bitter winds and frosts, desolate bituminous lakes; a region where for the most part there is neither fuel nor fodder; an Engadine of Asia, with nine months winter and three months cold weather; the home of the wild sheep, the summer haunt of a few wandering shepherds; nomads' land if not no man's land. Long ago Marco Polo described it well. That is the scene of Mr. and Mrs. Littledale's adventures; that is the region where the emissaries of three nations are now setting up rival claims. "The half-way house to heaven" is a Chinese appellation for the Pamirs. "Cœlum ipsum petimus stultitiâ" our and the Russian soldiers and diplomats may now almost say of one another. For the tales of summer pastures of extraordinary richness, told to Marco Polo and repeated to Mr. Littledale, refer, so far as they are true at all, only to isolated oases. The country in question cannot feed the caravans that cross it; far less could it sustain the baggage animals of an army on the march. No one in his senses could consider that in itself the Pamir is a desirable acquisition. Any value it may have is in relation to adjoining lands. From the north there is comparatively easy access to it from Russian Turkistan. From the east the Chinese and their subjects climb up the long ascent from the Khanates, and pass through easy gaps in the encircling horseshoe of mountains on to the portions of the tableland they claim. From the south, a route which seems from Mr. Littledale's experience to be anything but a military route, leads over glaciers, passes, and through well-nigh impassable gorges into Gassin and Chitral, and so to Kashmir. To the south-west easier routes, little known or little described as yet, lead into the wild regions of Kaffiristan and Afghanistan. We do not here deal with politics, but we do deal with the geographical and cartographical facts on a knowledge of which politics and policy ought to be—but unfortunately for our country have not always been—based. Certain portions of the Pamir have been more or less closely attached to Afghanistan. The Amir lays claim to Wakhan, Chignan, and Roshan, tracts stretching along the sources of the Oxus. It is obvious that England will claim an interest in these, but probably, owing to the deficiencies in exact knowledge of the geographers of Cabul, we have not as yet formulated publicly our claims.

In 1873 the Russian Government, at the time of their advance to Khiva, undertook never to pass the Oxus. Shortly afterwards, Sir Henry Rawlinson argued with great force that the Murgabi, the stream that cuts the Pamirs in two, and not the Pandja, which flows along their southern skirts, was the true and proper source of the Oxus. Seven years ago, in the negotiations which followed the Penjdeh incident, the negotiators deliberately left this portion of the frontier out of their calculations.

Why, undeterred by the experiences of which that entertaining traveller and Anglophobe, M. Bonvalot, had lately given so alarming a picture, should an Englishman and his wife cross this desert? Mr. and Mrs. Littledale are eager in the pursuit of rare game. They were old travellers; they had sojourned in the forest wildernesses of the western Caucasus; they had, on a previous occasion, penetrated Central Asia. A pair of horns were to them what a bit of rock from a maiden peak is to others.

And lastly, why did Mr. and Mrs. Littledale go from north to south? Why did they, being English, make Russian territory their starting-point? Thereby hangs a tale. Because our Anglo-Indian Government prohibits all independent travel in its trans-frontier lands. Something may be said for this course, but it does not stop there. It also gags its own official explorers. It carries yearly farther and farther the policy deprecated by Sir H. Rawlinson in this hall, when he said: "Russia deserves all honour for her services to geographical science in Asia. I only wish I could say as much for ourselves as regards our own frontiers."

No one, least of all the Council of this Society, would ask for the publication of any tactical information our military authorities desired to withhold. But the military authorities go along with us in asking for an intelligent censorship in place of a wholesale system of suppression of the mass of knowledge, general and scientific, acquired by the servants of the State in our frontier and trans-frontier lands. We believe, and the Council have represented to H.M. Government, that the present practice is not in accordance with the existing official rules, that it was intended and has been ordered that expurgated copies of all official reports of public interest should be given to the public. They hope that the departments concerned will before