

when a sufficient amount of open water appears, to make the passage a reasonable certainty, and the date for this year I place at from July 5 to 15, as it is more than likely that a ship could have got through the Straits in ten days. The ice is, moreover, so sensitive to wind that even if telegraph stations were so placed as to be able to convey to ships news regarding the position of the ice ahead, long before the vessel arrived at the place the condition of affairs might, and probably would, be totally changed.

As to the closing of navigation in 1884, Mr. Laperrière reports, at Cape Digges, that on October 25 the ice was solid in every direction, and at Nottingham Island a similar entry is made on the 27th. A distinction must be made between the closing of navigation by the formation of young ice, and the presence of a large field of heavy old ice which is cemented together by the formation of young ice between the pans. In the first case any ordinarily powerful steamer could go through without risk, but in the second case the most powerful of the whaling or sealing steamers would be helpless. The western end of the Straits is always subject to incursions of this heavy ice, from Fox Channel, and especially so in the months of September and October, when strong north-easterly and north-westerly gales are frequent, and we have now evidence that in both seasons, 1884 and 1885, this heavy ice came down in October.

As to the length of season for practical navigation, if we regard the presence of field ice as the only barrier, the information which we have got would point to the months of July, August, September, and October as being the months in which the Straits are passable. As a rule, in July there will be delays, but to vessels strengthened and sheathed there would be no danger in making the passage.

All the inhabitants of the Labrador, the Straits, and the Bay, spoken to on the subject, agreed in stating that the ice movements this year were much later than the average; at Fort Churchill the season was fully a month late, and on the Labrador three weeks, so that I think it will be found that on the average four months will be the length of the season for practical navigation by steam vessels which would be freight-carriers. There have been, I am informed, seasons when the Straits were clear of ice in the month of June, but they are, according to the logs of the Hudson's Bay ships, quite exceptional. Captain Hawes spoke of such being the case only once in his experience of fourteen years, and the dates which I have seen of the arrival of the Hudson's Bay vessels at their ports of destination show no arrival earlier than August.

THE TRASCASPIAN FAUNA

WE notice in one of the last issues of the *Bulletin* of the Moscow Society of Naturalists (1885, No. 2) a most valuable paper, by M. Zaroudnoi, on the birds of the Transcaspien region. His list contains an enumeration of 184 species, well determined on 600 specimens—doubts remaining only with regard to a very few species. The author distinguishes in the region the following chief zoological sub-regions:—(1) The Kara-kum desert, having a pretty well furnished flora, notwithstanding its immense sandy plains and salt clays. The Tamarix forests, now mostly destroyed, are well peopled with the *Atraphornis aralensis*, as also with a few *Podoces (Panderi?)* and *Passer (ammოდendri?)*, which make their nests further north in the *saksaul* forests. The *Houbara quennii*, Gray, is rare. The reptiles are represented by the *Phrynocephalus interscapularis* and *helioscopus*, *Agama sanguinolenta*, *Testudo*, *Naja oxiana*, *Eichwald*; the *Varanus sciurus* extends much further south into the Akhal-Tekke plain, and even to the Kopet-dagh Mountains. (2) The Akhal-Tekke oasis, striking by the monotony of its landscape, diversified only by the gardens of the Tekkes, which remain green even during the hottest part of the summer, when all vegetation is scorched up by the sun. In the plain only the Tamarix, a few willows on the banks of the rivulets, and the dark-green bushes of the capers, adorned with pretty flowers, are to be seen. The great areas covered with bushes of *Alchagi camelorum* and wormwood increase the monotony of the landscape. Pretty *Fulodis variolaris*, *eufraticus*, and sometimes *globicollis* are often found flying around these bushes; in July the *Fischeria baetica*, Ramb., several Irises, as also *Empus pennicornis*, Pall., several kinds of *Ateuchus* and *Copris*, and numerous species of *Melanoromata*

are met with. The stone-chatters (traquets) and larks are so numerous as to become troublesome. The *Phrynocephalus helioscopus* and *Agama sanguinolenta* fly at the approach of man. From time to time a *dschetran*, or a fox, may be perceived. The nights are sultry and hot, and one hears the shrivelling of the *Grillus cerisyi*, Serv., and *G. capensis*, Fabr., the barking of the jackals, and the cries of *Caprimulgus arenicolor*, Sev. The banks of the few rivers, covered with brush and reed-grass, are the refuge of the wild cat and the *Lagomys*. The high summer temperature of the oasis is well known: 40° Cels. in the shade being not uncommon; and M. Zaroudnoi is inclined to ascribe to the great heat the intensity of the moulting of birds. The lark loses so much of its feathers that the body remains in many parts quite naked; with the stone-chatters only the base of the feathers remains on their heads. Most of the birds met with in the oasis during the summer belong to the Aral-Caspian fauna, the others come from the mountains; these last have followed the courses of the rivers and have taken possession of the Akhal-Tekke gardens; such are the *Saliciventer montanus*, *Passer indicus*, *Sylvia mystacea*, *Butalis grisola*, a great number of *Saliciventer*, and several others. Some, like the griffons, the ravens, the *Cypselus apus*, the *Chelidon urbica*, the *Merops apiaster*, inhabit the mountains, and descend to the plain only for hunting. The *Galerita magna*, *Calandrella pispoleta*, and *Saxicola isabellina*, may be considered as representatives of the Akhal-Tekke fauna owing to their considerable numbers. (3) The mountain-region is much more interesting, especially when the traveller reaches the upper valleys covered with forests, where the vines grow wild. Wild cats and jackals are the usual inhabitants of these valleys; but the *Cynailurus jubatus* and the *Leopardus pardus* are rare; *L. irbis* is never met with in the region. *Hyena striata* is occasionally met with. *Ellobis talpinus*, several *Erinaceus* and *Platycomys*, as also *Histrix hirsutirostris* are common. The dreadful *Vipera eufratica* is a source of continual danger during the grape-harvest. *Eremias velox* and *Agama sanguinolenta* are worthy of notice. As to the birds, we must merely refer to the list of M. Zaroudnoi, where notes as to their distribution are given in French. The zoological determinations have been revised by M. Menzbier.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, May 27.—“Researches in Stellar Photography.” By the Rev. Prof. Pritchard, F.R.S.

The objects of these researches are:—(1) To ascertain, if possible, by means of definite and accurate measurement, as distinguished from impressions and estimates, what is the relation between the diameter of a star-disk impressed on a photographic plate with a given exposure, and its photometric magnitude, instrumentally determined. With this view, five plates of the Pleiades were taken with different exposures, on different nights. The diameters of the star-disks on each of the plates were then measured with a double-image micrometer, checked by measurement also with the macro-micrometer in the Oxford University Observatory. Curves were then drawn for each of the plates, taking the magnitudes as given in the “*Uranometria Nova Oxoniensis*” as abscissæ, and the measured diameters as ordinates. The result was a satisfactory coincidence in the case of all the plates, leading, when treated in the usual manner, to the final result—

$$D - D' = \delta \{ \log M' - \log M \} \dots (1)$$

where D , D' are the measured diameters of any two stars on the plate, and M , M' the corresponding photometric magnitudes; δ being a definite constant depending on the physical circumstances of the particular plate.

It was observable that, out of twenty-eight stars examined, three stood out from the rest, indicating, as might have been expected, some peculiarity in the spectra of these stars. In the memoir itself the tabular relations of all the measures are exhibited. The similarity of the symbolical form above to the relations existing between “magnitude” and intensity of light is obvious and interesting.

(2) Another branch of the inquiry is still more important, and it is this. Seeing that in the modern use of the dry plates the times of exposure are so considerable, and the processes of development and drying, &c., so suspiciously dangerous to the stability of the films, it becomes a matter of great importance to ascertain