a striking fact that if the three extensive clear regions of the earth are considered, there are no large observatories located within them. The interior of northern Africa has no large observatory. The only large observatory in South Africa is in Cape Town, an exceptionally cloudy part of that region. In Australia, the clear interior is left unoccupied, while the two principal observatories are on the coast, at Sydney and Melbourne. The well-known Harvard Southern Observatory, at Arequipa, Peru, is handicapped by clouds in summer (November to March). There seems a possibility of excellent conditions in South Africa, but it is doubtful as yet whether the conditions would be better than at Arequipa.

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PALEONTOLOGICAL NOTES.

THE PENGUINS.

Dr. Wiman's and Dr. Ameghino's papers on fossil penguins are so important as to demand review, although it is some little time since they appeared. Dr. Carl Wiman deals with the bones of fossil penguins obtained at Seymour Island by the Swedish South Polar Expedition; Dr. Florentino Ameghino while nominally giving an enumeration of fossil penguins of Patagonia and Seymour Island gives descriptions and figures of all the species and also discusses their probable origin. Dr. Wiman describes as new five species, each of which is referred to a new genus, while Dr. Ameghino describes nine new genera and thirteen new species, and also replaces the nomen nudum *Apterodytes* by *Paleoapterodytes*. Dr. Wiman, who is very conservative, states that his specimens may represent more than the five species described since, owing to the conditions under which they were found, it has not been possible to correlate the bones. Adding to the nineteen genera and thirty-one species admitted by Ameghino, the seven additional genera and eighteen species given in Sharpe's hand list, we have a total of twenty-six genera and forty-nine species of penguins. None of the existing genera, comprising seventeen species, have as yet been found in a fossil state.

Dr. Wiman ascribes the formation from which his specimens came to the Eocene, but in a note states that Dr. Wilckens, basing his opinion on the marine invertebrates, considers them as Oligocene or Lower Miocene. This agrees pretty well with the views of Ameghino, who holds that Seymour Island is geologically a portion of Patagonia and the horizon of Wiman's specimens Miocene. The point of greatest interest is that both authors state that the earlier species of penguin, so far as shown by their limbs, and especially by the tarsi, are much more generalized than the living species and Wiman, in particular, says that his specimens show a much closer resemblance to the corresponding bones of carinates than do the same parts of modern penguins. The tarsi, it may be said, are comparatively longer in the fossil species than in recent forms and their component bones much less clearly indicated. This is exactly the reverse of what should be found, if the generally accepted theory that the tarsus of the penguin is a survival of the primitive free condition of the tarsal bones, is correct, and further discoveries may, of course, bring to light forms ancestral to the penguins in which the tarsal bones are free. Still it is to be remembered that in *Archæopteryx* the tarsals are fused and this is also the case with the known cretaceous birds in some of which the tarsus is highly specialized. The above facts agree with my own view that a large portion of the characters which have been held to place the penguins in a group apart from other Euornithes, are purely adaptive and while the adaptive features of the short broad tarsus may not at first be evident, it is very likely correlated with the habit of sitting with the tarsus on the ground when at rest. In walking, the tarsus is held upright as in any other bird. Right here, it may be well to say a word or two in regard to the tarsus of *Ceratosaurus,* which is referred to by Dr. Wiman, and to state that Dr. Baur was entirely correct in ascribing the union of the tarsals in this genus to pathological causes. The type of this genus is in the U. S. National Museum

and the bones of the tarsus were broken and healed during life, the accompanying exostosis soldering them together. It is most unfortunate that this wilful error should be perpetuated, but like Richardson's figure of the pouched rat, it will probably endure for generations to come.

The most generalized penguins are placed by Ameghino in the family *Cladornidæ* including but two species, *Cladornis pachypus* and *Cruschedula revolva*. The figure of this last is poor and from this alone it is not quite evident why it should be placed with the penguins at all. Wiman and Ameghino agree in considering that the penguins originated in the Southern Hemisphere and that they have always had much the same distribution as at present. Ameghino further believes they descended from species that inhabited the vicinity of fresh water. The known facts bear out the first conclusion, but in view of the little we know regarding the history of birds it will be best to accept it subject to further revision.

The above notes had just been sent in when Dr. Abel's paper from Centralblatt für Mineralogie * * * was received. In this Dr. Abel discusses the bones described by me in 1900 as the pelvis of Zeuglodon and concludes that they are really the coracoids of a gigantic bird which he names *Alabamornis gigantea*.

The paper seemed so clear and convincing that this conclusion was at once accepted and a brief review begun on that basis. As this proceeded it became evident, with my knowledge of the bones in question, that if they were the coracoids of a bird, that bird was extraordinary not say exceptional in many particulars. It has, therefore, seemed best to postpone the review of Dr. Abel's paper until later in order to better examine certain details and if possible, reexamine the bones themselves. This is not for the sake of mere argument as to whether the bones are those of a bird or beast but because, if they are from a bird, they are most important.

The bearing on this particular article lies in the fact that Dr. Abel finds the nearest resemblance to these bones in the coracoid of *Anthropornis*, described by Dr. Wiman, although the differences between the two are great.

F. A. LUCAS.

SCIENTIFIC NOTES AND NEWS.

DR. A. A. MICHELSON, professor of physics at Chicago, has been elected a foreign member of the Accademia dei Lincei, Rome.

DR. L. A. BAUER has been elected a corresponding member of the Göttingen Royal Academy of Sciences.

IN connection with the recent meeting of the British Medical Association in Toronto, McGill University, Montreal, will confer the degree of LL.D. *in absentia* on Sir Thomas Barlow, Sir William Broadbent, Professor Allbutt and Sir Victor Horsley.

THE Graefe medal of the German Ophthalmological Society has been awarded to Dr. Ewald Hering, professor of physiology at Leipzig.

DR. KUNO FISCHER has retired from the professorship of philosophy at Heidelberg.

DR. SIMON SCHWENDENER, professor of botany at Berlin, has celebrated the fiftieth anniversary of his doctorate.

Nature states that Mr. William Lutley Sclater has resigned the directorship of the South African Museum, Cape Town, which he has held for the last ten years, and has returned to England. He has accepted the post of director of the museum of Colorado College.

FROM the same journal we learn that Mr. Michael John Nicoll, who recently returned from accompanying the Earl of Crawford as naturalist during his winter voyage in the *Valhalla*, R.Y.S., round Africa, has accepted the post of assistant director of the Zoological Gardens at Giza, near Cairo, and has left England to take up the duties of his appointment.

DR. FRIDTJOF NANSEN, the Norwegian minister to Great Britain, has accepted the presidency of the Social and Political Education League in succession to Professor F. W. Maitland.