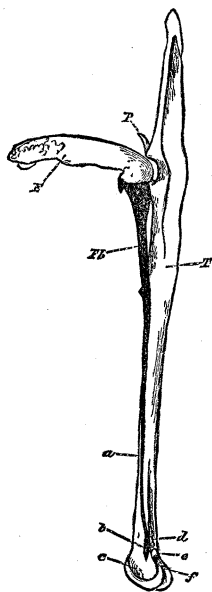


A complete fibula in an adult living carinate-bird.

In reference to the important anatomical point contained in the letter of Dr. G. Baur to *Science* (No. 118) in regard to the fibula of Pandion, I would like to invite your correspondent's attention to the condition of the fibula in the adult *Colymbus septentrionalis*. I have in my temporary possession a complete skeleton of an adult individual of this diver, kindly lent me by the Smithsonian institution (spec. 13,646) for another purpose. In it the fibula is found, as I have drawn the specimen in the accompanying cut, for the right limb, though it is seen equally well in both. The fibula has been drawn in black for its entire length, so that its exact form and relation to the tibio-tarsus may be properly appreciated. From the point *a* to *b* it anchyloses with the shaft of the other leg-bone, though it stands out quite prominently from it, leaving no doubt as to its identity. Knowing as we do that the part indicated in the cut by *c* represents one of the tarsal elements, it is no more than we should expect to have a complete fibula terminate, as it does in this bird, at *b*; and this part, in common with Pandion, is found upon the antero-lateral aspect rather than in front of the tibio-tarsus, as in the Jurassic *Archaeopteryx*.



BONES OF RIGHT THIGH AND LEG OF ADULT *COLYMBUS SEPTENTRIONALIS*. REDUCED ONE-HALF.

F, femur; *P*, patella; *Fb*, fibula (in black); *T*, tibio-tarsus; *a*, point where ankylosis commences; *b*, distal extremity of fibula; *c*, the united tarsal element; *d*, a fibrous loop for tendon; *e*, the large oblique fibrous loop for extensor tendons; *f* indicates the position of the bony bridge that confines the deep extensors.

Dr. R. W. SHUFELDT.

Fort Wingate, N. Mex., June 8.

The classification and paleontology of the U.S. tertiary deposits.

Under this head a note was published in the number of June 12 of this journal, on the first part of my article, 'The genealogy and the age of the species in the southern old tertiary,' in the *American journal of science* for June. I refer those readers of *Science* who are interested in this matter to the second part of this article, which will appear in the July number of the same journal.

DR. OTTO MEYER.

New Haven, Conn., June 15.

HOW TO REACH THE GRAND CAÑON.

ALTHOUGH the Grand Cañon of the Colorado was a good while ago made famous as to its lower part by Ives and Newberry, and the upper by Powell, and although most interesting parts of it are nearly approached by one of the great transcontinental railways, yet very

few people seem to know how easy it is to visit it, — easy, that is, to one who is crossing the continent by the Atlantic and Pacific railroad. It was almost by accident that we came to know of this accessibility, and to take advantage of it.

We know not what facilities there may be for reaching the lower end of the cañon from 'The Needles,' where the road crosses the Rio Colorado; but the Peach-Spring station, where this road approaches within twenty-three miles of the river, at its strong southern bend, is about six hours east of 'The Needles,' and on the plateau about five thousand feet higher. From this point a rapid and easily traversed descent leads down to the river, and into as majestic and peculiar cañon scenery as is anywhere to be seen. Unfortunately the trains, both from the east and the west, at present arrive at this little watering-station between two and three o'clock in the morning; and intending visitors will find it well, if not exactly necessary, to notify the station-master or the 'stage proprietor' in advance, so as to secure lodgings for the remainder of the night. Mr. Farlee, the stage proprietor, into whose hands they will fall, provides three or four comfortable beds; the restaurant of the station, which supplies the employees of the railroad, will furnish a tolerable breakfast; and a three-seated wagon, upon the buckboard principle, drawn by four experienced horses, makes a really comfortable conveyance. All that the traveller needs to provide is a sun-umbrella, — an article which will probably be needed at any season. A quick descent of four thousand feet into a narrow ravine is sure to be attended by a corresponding rise in temperature; and shade during the journey is not abundant.

Dr. Newberry and his exploring party were the first white people to make this trip, in April, 1858; and his account of it in Ives's report upon the Colorado River of the west, along with the woodcut on p. 99 and the annexed plate vi., and plate i. of the geological part, opposite p. 54, will give a fair idea of what is to be seen. Nothing is changed, except that the Indian trail, over which his pack-mules made their way with much difficulty, is now replaced with a passable wagon-road of Mr. Farlee's making. Very enterprising and hurried people make the trip in a single day, especially in the long days of spring, and so resume the railroad by the next (daily) train, the journey back and forth being made in the early morning and in the evening hours. But, indeed, two days should be given to it, even by the transient sight-seer, lodging in the