

not yet been discovered, the phylogeny of the orders of placental mammals was now undoubtedly completed in its main features. The phylogeny of the clawed groups has been traced back to a common ordinal form, the Bunotheria, and that of the hoofed groups to the contemporaneous order, Condylarthra; while at the same time the characters of the feet of the Condylarthra agree with those of clawed placental mammalia, and bind the series together; the anthropoid line may also be traced directly through the lemurs to the Condylarthra. These views were fortified by numerous examples. Mr. S. H. Scudder gave a sketch of the geological development of the orders of winged insects, in which he claimed that no ordinal differentiation could be detected in paleozoic insects, although all the existing orders were fully developed by the middle of the mesozoic period: he therefore held that we were to look to the triassic period for the most interesting future discoveries in this field. Dr. T. Gill exposed his latest views regarding the orders of fishes, and introduced a speculative paper, by Dr. Ryder, on the flukes of whales, which he looked upon as the posteriorly transferred, hypertrophied, tegumentary elements of the mammalian hind-legs, basing his argument on embryological evidence, and on the anterior transference of the front limbs and girdle in certain mammalia. Dr. J. S. Billings exhibited a series of composite photographs of skulls, and explained the method pursued in taking them directly from the skull; as also a method of measuring the cubi capacity of crania, devised by Dr. Matthews. This consisted briefly in the rapid use of water instead of shot or seed, after rendering the skull water-tight by closing all the small openings with putty, spraying the interior with thin varnish, and embedding the whole skull in putty. Finally, Major Powell read a paper on the organization of the tribe, and the differentiation of kinship, distinguishing between agnatic kinship, founded upon brother groups, and enatic kinship, founded upon sister groups.

The next meeting of the academy will be held in Albany, beginning Nov. 10.

## LETTERS TO THE EDITOR.

\*.\* Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

**Mr. Hampden's designation of Sir Isaac Newton.**

ON p. 283 of *Science* (April 3) it is stated that "to call Sir Isaac Newton 'a fanatical pantheist' is a happy thought which would certainly not have occurred to everybody." I trust I shall not incur the risk of identification with the disciples of Mr. John Hampden if I venture to express my conviction that this gentleman does not vituperate Newton when he applies to him a term at once appropriate and just. Surely, if such were my opinion, I should be justified in asserting that the *scholium generale* at the end of the third book of the 'Principia' reads like the drivel of a cretin rather than a scientific conclusion. While science itself forms a grand and sublime whole,—its only rival and superior being pure reason and sense,—it is nevertheless true that nothing can be more disappointing than many of the biographies of physicists, who, even in the most favorable instances, are but little great men. In Locke's correspondence with his nephew Sir Peter King, we perceive what a delicate matter it was to have anything to do with Newton in connection with their precious mutual confidences with respect to the mystical and prophetic parts of the New Testament. Hitherto Sir Isaac's devotion—I may add, fanatical devotion—to theology has never been called in question. His laborious criticism of Dr. Burnett's 'Sacred theory of the earth' deserves a place among other kindred examples of human folly and irrational superstition, its object being to prove that the surface of the earth afforded indubitable evidences of the truth of the Bible account of creation.

M. C. O'BRYNE.

Highlands, Macon county, N.C.,  
April 17.

**A second phalanx in the third digit of a carinate-bird's wing.**

There is not a single adult carinate-bird known bearing two phalanges at the third digit. Jeffries (*Proc. Bost. soc. nat. hist.*, xxi. 301-306) gives the following four families of birds having two phalanges in the first, three phalanges in the second, and one phalanx in the third digit: the Palamedeae, Anseres, Alektorides, and Pygopodes. The only living bird which has two phalanges in the third digit is the ostrich from Africa (Alix). According to Meckel (*Archiv. anat. phys.*, 1830, 233) and Nitsch (*Osteogr. beitr. naturg. vögel*, Leipzig, 1811, 90), the ostrich possesses only one phalanx in the third digit. The only known bird having four phalanges in the third digit is *Archaeopteryx* (Dames) from the lithographic limestone.

It is evident that all birds at a former time had four phalanges in the third digit; and it seemed very probable to me that rudiments of at least one phalanx more than in the adult ought to be found in embryos of the above four families. This probability has been verified by the examination of an embryo of *Anas domestica* L. (length of ulna 2.5 mm.), where I find a rudiment of a second cartilaginous phalanx in the third digit.

I think it not improbable that the rudiment of a third phalanx (if there is really a second one in the third digit) will be found in embryos of the ostrich, which I hope soon to examine.

DR. G. BAUR.

Yale-college museum, New Haven;  
Conn., April 24.