definite changes usually occurred in the ovaries, and in many instances, ova ruptured and yolk material escaped into the abdominal cavity. The ovarian lesions were not found in those cases which developed septicemia and died very suddenly.

Ten healthy pullets were injected intraperitoneally with the entire yolk content of eggs laid by healthy hens. This was done in an effort to determine whether or not the possible rupture of a normal ovum would cause disease. The ten pullets failed to develop symptoms and autopsies on four revealed the fact that the injected yolk material was quickly absorbed.

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THE RÔLE OF BACTERIA AS FOOD FOR BOTTOM ANIMALS

IT has long been my opinion that we have not given bacteria sufficient credit for the part they play in the food supply of mud-flat and ocean-bottom animals.

Two Gephyrean worms of the species *Urechis caupo* Fisher and MacGinitie[1] were placed in rotted sea water and fed a culture of the bacterium *Pseudomonas* sp. for a period of 68 days. During this time these worms showed a growth which was greater than that usually occurring in nature. Two controls wasted away and died after 61 and 63 days, respectively.

Urechis caupo was used for this experiment, because it lives in mud-flat regions rich in bacteria and because it feeds by spinning a slime net, which intercepts all particles within the range of microscopic vision.

From the results of the above experiment it may be concluded that if a bottom animal can use a cultured bacterium as food and show normal or increased rate of growth, it seems safe to assume that when bacteria occur in the food of such animals in nature they are utilized in the proportion in which they occur.

The use of bacteria as a food supply offers possibilities for their use in rearing larvae for developmental studies and experimental embryology.

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SCIENTIFIC BOOKS

Wild Beasts To-day. By HAROLD J. SHEPSTONE.

I WAS constrained, not long since, to buy a book called, "Wild Beasts To-day" by Harold J. Shepstone, largely because it was an English book and because it had been well reviewed. English writers on natural history have, in the past, set for themselves a splendid standard, and I for one have for years been buying books on wild life by British writers with a sure confidence that an evening's reading would be a real pleasure. The tendency, so obvious on the part of some American writers, to capitalize at a high advertising value facts which are unknown to the average reader, though well known to scientific persons familiar with the literature of their profession—this tendency has been conspicuously absent in the case of English writers, and this has been no small factor in explaining the considerable sale in America of English books on popular natural history.

With this preamble I will now add a few observations on Shepstone's book.

It is thoroughly well made, light, type well chosen and with many excellent illustrations. Some chapters are well written, as that dealing with the London Zoo and Whipsnade, but the book at large so abounds in inaccuracies as to cause one to be bewildered that so great ignorance can exist in one who makes bold to write a book. We read (p. 69) the old, silly story that a twelve-foot alligator is from seventy-five to one hundred and fifty years old—it is more likely twenty. The author speaks of his friend Campbell controlling his unruly alligators "by means of a hypnotizing effect" (p. 78). We read of snapping turtle farms in Japan (p. 93), but the snapping turtle, by universal usage, is the American Chelydra. These Japanese turtles can also bite through a stout cane or bite off the blade of an oar (p. 85), which, of course, is pure nonsense. The fact that the blow of a green turtle's fin will break a man's leg (p. 87) will be a surprise to those who have handled green turtles. The famous snake farm at Butantan in Brazil is a serotherapeutic, not serotherapic, institute, as Mr. Shepstone repeatedly calls it (p. 91). On p. 95 we read that snake venom has a high curative value in medicine, and it is declared to be a cure for epileptic fits as well as beneficial for rheumatism and certain cases of insanity. This will cause surprise and rejoicing in medical circles. There is a South African snake called a ringhals, but no ringhal (p. 96). So also there is a town in Arizona called Tucson (pronounced "Tooson"), but no town called Tuscan, nor do I know

[1] For a complete description of the feeding habits and natural history of this worm, see *Ann. and Mag. Nat. Hist.*, Ser. 10, Vol. 5, p. 204, July, 1930.

of any "extensive and well-conducted" lizard and snake farms there or anywhere else.

Ethnologists will be surprised to learn of Eskimos in northern Newfoundland, yet we read of Grenfell's buying reindeer for them (p. 139). I have two colleagues in the great Natural History Museum in New York, one Mr. John T. Nichols in the department of ichthyology and the other Dr. Robert Cushman Murphy, a curator in the department of birds. On p. 185 these gentlemen appear as the noted ichthyologists Professor J. T. Nicholas and Prof. R. Cushman-Murphy. The late lamented president of Stanford University was David Starr Jordan, not David Starr Johnson, and our author claims to have been to California, too! Further on an excellent picture of the beluga or white whale, quite the best I have ever seen, is labelled the "Peluga." There no doubt may be "Kelpspringers," but they are probably gammarid crustaceans; the animal our author wanted to discuss on p. 224 is called a klipspringer, and it knows not the kelp beds. I have the honor to belong to the Boone and Crockett Club in New York, but President Roosevelt never worked for wild life conservation with the Lewis and Clark Club, for there is none.

The thing, however, which has surprised me most was to learn that there are hundreds of eider ducks breeding on "Duck Lake off the coast of Maine." There is a colony of herring gulls and Leach's petrels on Duck Island off the coast of Maine, but there are positively no "lakes" off this coast at all.

Enough of this cavilling. The book abounds in inaccuracies. I think I have shown this to be the case. There is one other fault, which in truth is really harmful, and this is the amount of space and praise devoted to the transfer of bison from southern Canada into the northern wood bison reserve. This, one of the most tragic examples of bureaucratic stupidity in all history, was done against the protests of both Canadian and American naturalists who would rather have seen the surplus southern bison killed. They were known to be infected with bovine tuberculosis and they are certain to interbreed as well as infect the wood bison, which is a far finer animal and one of great zoological interest because in some respects it seems more like the European wisent than the common American bison. The book would have done well to have shown up this transfer to the public in its true light as a real tragedy and not as a triumph of conservation. The public as a matter of fact has never had the true story, and Shepstone might easily have given it as he could have gotten it from any intelligent mammalogist on this continent.

The writing of this review has not been a pleasure, and I only hope that British publishers will exercise more care in accepting manuscripts in the future. They have certainly set a most commendable example to their American confrères in the past—and one which the latter have often failed to follow.

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A General Catalogue of the Radial Velocities of Stars, Nebulae and Clusters. By JOSEPH HAINES MOORE. xvi + 220 pp. Publications of the Lick Observatory, Vol. XVIII, 1932. University of California Press, Berkeley.

NEW catalogues of fundamental astronomical data, as they appear from time to time, bear witness to the rapid progress being made by observatories in many parts of the world in the accumulation of these data. The latest catalogue of sidereal radial velocities comes appropriately from the Lick Observatory, where investigations of the radial velocities of the stars have for many years constituted an important part of the programs, on Mount Hamilton and, until recently, at the southern station in Chile; and it comes from the hand of Dr. J. H. Moore, who has had a prominent share in these investigations.

The catalogue contains all stellar radial velocities published prior to January 1, 1932. It is complete for all stars down to visual magnitude 5.5, and contains in addition the radial velocities of many fainter stars, especially those in the northern celestial hemisphere. This unbalanced condition for the fainter stars will become increasingly serious, as Commission 30 of the International Astronomical Union has pointed out, unless the spectroscopic work can be more evenly distributed between the two hemispheres than it is at present. The number of stars entered in the catalogue is 6,739, counting the components of visual doubles as two stars, and of these 1,320 are considered to have variable velocities. For each star we find, among other data, the designation, position, visual magnitude, spectral class, mean observed radial velocity, usually to the tenth of a km./sec., and the adopted radial velocity, together with an estimate of its uncertainty. These radial velocities were determined at 19 observatories. The results derived at each observatory have been corrected for systematic differences, so far as possible, from the Lick system, which represents very closely the average for all.

Reference is made in the introduction to two previous catalogues of radial velocities published by Voûte, in 1921 and 1928. The reviewer would mention Schlesinger's "Catalogue of Bright Stars" also. This useful catalogue contains, together with other data, the radial velocities of all stars brighter than 6.5 visual magnitude which were known in June, 1930. These velocities are given to the nearest km./sec., and are reduced to the Lick system.