

in plants. All other cells of the animal constitute a generation comparable with the sporophytic generation in plants, the fertilized egg being the first cell of this series."

In the diagrams employed in the exposition of his theory he indicates that the animal egg by itself and each spermatozoid is comparable to a plant gametophyte. His statements are not consistent, not in accordance with the facts or even with his figures, and it appears that just where he wishes to draw the homology is not quite clear in his own mind.

Our knowledge of animal phylogeny affords no evidence that the gametes, with their reduced number of chromosomes, are vestigial individuals which at one time in their history lived independent of or apart from the animal body. They do not constitute and there is no evidence that they ever have constituted, a *generation* in the life-history of any animal organism. If amphimixis occurs in the life-history of an organism, a reducing division must also occur. The mechanism of reduction seems, in general, to be bound up in two successive mitoses. That the cytological processes of reduction in plants and animals closely approximate a common plan does, by no means, justify the conclusion that the products are of the same morphological value in the life-cycles of each.

Chamberlain says: "To me the comparison seems so obvious that I can explain the previous absence of a theory of alternation of generations in animals only by the fact that the gamete-bearing generation is extremely reduced and is not approached by any gradual series as in plants. * * * I do not claim any acquaintance with zoological literature further than a reading of the latest edition of Wilson's 'The Cell in Development and Inheritance.' Were there any theories as to alternation of generations in animals, doubtless they would have been thoroughly discussed in that book."

That zoologists recognize an alternation of generations in the Hydrozoa and Scyphozoa is a common statement of their text-books. That a theory of antithetic alternation of generations in the life-histories of animals has been propounded by certain zoologists, Beard

and Murray,* does not require a knowledge of zoological literature to determine, for it occupies a conspicuous place in a prominent botanical journal as well.

In the course of their discussion Beard and Murray write: "When one seeks in the higher animals for an equivalent of the alternation of generations in plants in the light of recent work on the reducing division of spore-formation, such a morphological mark would only be found in the maturation of the egg and in spermatogenesis. If the process were here a spore-formation, the whole metazoan body, in which it took place, would represent the asexual generation, and any apparent alternation of generations in the life-cycle would be homologous in character, not antithetic."

In speaking of the reduction of chromosomes in the oogenesis of *Fucus*, Farmer and Williams† call attention to this same analogy in the following sentences: "Thus *Fucus*, in this respect, approximates more closely to the type of animal oogenesis than to that which obtains in those higher plants in which the details of chromosome reduction have been followed out. Regarded from the standpoint of the number of its chromosomes, the *Fucus*-plant resembles the *sporophyte* of the higher plants, whilst the gametophyte of the latter, with its reduced number of chromosomes, finds its analogue merely in the maturing sexual cells of *Fucus*." HAROLD L. LYON.

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SCIENCE AND THE NEWSPAPERS.

TO THE EDITOR OF SCIENCE: Recently three Chicago newspapers (the *Record-Herald*, the *Tribune* and the *Chronicle*) published, without our knowledge or consent, an alleged account of experiments communicated by us to a meeting of physiologists. It is needless to state that this account was quite misleading. We at once sent the enclosed letter to the papers in question. Only one of them (the *Record-Herald*) pursued the fair and manly course of publishing it. The *Tribune* did not deign even to acknowledge receipt of our let-

* *Anat. Anzeiger*, 11: 234-255. *Ann. of Botany*, 9: 441-468.

† *Ann. of Botany*, 10: 479-487.

ter. The *Chronicle* refused to print it, but offered to correct any misstatements in its article, an illusory offer in relation to such a tissue of inaccuracies, and one which we had no desire to accept.

We think it right that the scientific professions should know the attitude which the conductors of some newspapers consider themselves justified in adopting towards scientific workers, and we wish to record in your columns, once for all, that protest which they have not permitted us to make in theirs.

G. N. STEWART,
C. C. GUTHRIE.

CHICAGO, APRIL 3, 1905.

Sir:—In yesterday's issue of your paper there occurs a garbled and misleading account of certain experiments communicated by us to a meeting of physiologists of the central states. We are entirely opposed to the discussion of such matters in the lay press. If any reporter was present at our meeting he certainly was there without invitation or permission. We do not know from what source this remarkable piece of copy reached your office. But we can not think the writer has fully considered how injurious such notices may be to the reputation of scientific investigators; and while we entertain the greatest respect for your paper in its proper sphere, we must beg of you in the future to do us the honor of leaving us and our work alone. We trust that you will give this letter the same publicity as the paragraph to which we object.

We remain, yours truly,

(Signed) G. N. STEWART,
C. C. GUTHRIE.

A MODEST STUDENT OF ANIMAL PSYCHOLOGY.

In the preface to 'The Watchers of the Trails' its author, C. G. D. Roberts, writes:

The psychological processes of the animals are so simple, so obvious, in comparison with those of man, their actions flow so directly from their springs of impulse, that it is, as a rule, an easy matter to infer the motives which are at any one moment impelling them. In my desire to avoid alike the melodramatic, the visionary and the sentimental, I have studied to keep well within the limits of safe inference. Where I may have seemed to state too confidently the motives underlying the special action of this or that animal, it will usually be found that the action itself is

very fully presented; and it will, I think, be further found that the motive which I have here assumed affords the most reasonable, if not the only reasonable, explanation of that action.

On page 221 of the same book the author writes:

As the raccoons crept along behind the woodshed they smelt traces of a sickly pungent odour, and knew that other marauders had been on the ground not very long before. This made them bolder in their enterprise, for they knew that such depredations as they might commit would be laid to the account of the skunks, and, therefore not likely to draw down vengeance upon the [raccoon's] den in the sycamore.

MAYNARD M. METCALF.

THE WOMAN'S COLLEGE OF BALTIMORE,
March 19, 1905.

A NEW FORM OF STEREOSCOPE.

TO THE EDITOR OF SCIENCE: I read with interest Professor Whitman's account of his new form of stereoscope in your issue of April 7. I have described the same type of instrument in SCIENCE, Vol. VII., p. 619. I was led to the invention thereof by the instrument called the perspectoscope which mistakenly attempted to get a stereoscopic effect from a single photograph, but in doing so used the convenient device of placing the eyes at right angles to the picture. Using this principle, I made an apparatus with pivoting mirrors which enabled me to throw one of a pair of stereoscopic images into the one eye, and the other into the other, just as Professor Whitman has independently done. I have used this both in combination with weak lenses and without them. I have had such an apparatus in my laboratory for about seven years.

The main advantage of the instrument (its defects are well defined by Professor Whitman) for the psychological student is that it offers a simple means of reversing the perspective without changing the card, throwing the image of the right-hand picture into the right or left eye and correspondingly for the left eye, thus producing a stereoscopic or a pseudoscopic effect; indeed, an intermediate position in which the same view is thrown into each eye is also possible and thus gives the entire range of combinations. The Chicago