detection, were explained by the speaker, and a large array of choice specimens of adulterated goods were shown which furnished strong testimony to the cupidity of some manufacturers of food articles and, in many cases, to their lack of regard for human health.

The second paper of the evening, by Dr. C. A. Fuller, was on the subject, 'The Dissemination of Typhoid Fever by Oysters.' Outbreaks of this disease have occasionally been traced to infected oysters. Bacteriological examinations of these shell-fish usually demonstrate the presence of bacterium coli. The survey of 3,000 acres of oyster ground in Rhode Island waters showed that both water and oysters from sections within six miles of the outlet of the capital city sewer contained sewage bacteria, while samples taken at a greater distance from the source of contamination were not infected; similar conditions were observed to prevail in a number of the oyster beds on the east coast of the United States.

F. W. Woll,
Secretary.

MEETING OF EXPERIMENTAL PSYCHOLOGISTS AT CLARK UNIVERSITY.

The second yearly meeting of teachers and students of experimental psychology was held in the Clark University laboratory, at the invitation of Professor E. C. Sanford, on Friday and Saturday, March 31 and April 1. At the first session, on Friday afternoon, papers were read by Mr. L. M. Terman, on 'Tests of Bright and Dull Boys'; by Mr. A. L. Gesell, on 'Handwriting and Scholarship'; and by Mr. W. F. Book, on the 'Learning of Typewriting.' The visitors then inspected the laboratory, under the guidance of Professor Sanford, who demonstrated, among other instruments, two devices for the determination of the temporal limen of disparate sense impressions, a rotating-prism color mixer, and an apparatus for investigating the sensible discrimination of purple. Professor A. H. Pierce, of Smith College, next described three researches now in progress in his laboratory; and a paper by Professor Max Meyer ('Auditory Sensations in an Elementary Laboratory Course') was read by Mr. H. C. Stevens, of Cornell University. A discussion followed, in which Professors Pierce, Sanford and Titchener took part. In the evening the visiting psychologists were entertained at dinner by Professor Sanford.

The session of Saturday morning was opened by President Hall, with a paper on 'Some Tendencies and Dangers of Experimental Psychology.' The paper was discussed by Dr. Hylan and Professor Titchener. Adjournment was then made to the physical laboratory, where Professor A. G. Webster demonstrated his apparatus for the measurement of the objective intensity of sound. The last hour of the morning was spent in further inspection of the psychological laboratory, after which the guests enjoyed the opportunity of meeting the Clark University students at a luncheon given by President Hall.

At the afternoon session Professor Bentley, of Cornell University, read a paper on the 'Analysis of Tones,' and afterwards demonstrated his method and certain of his results. The meeting was fittingly concluded by an inspection of the new library building, arranged by Mr. L. N. Wilson. All psychologists know the treasures of the Clark University library, and the willing courtesy of their custodian; and all present on this occasion were delighted with the disposition and conveniences of the library.

It was decided to accept Professor Judd's invitation to hold the meeting of 1906 in the Yale University laboratory.

DISCUSSION AND CORRESPONDENCE.

ALTERNATION OF GENERATIONS IN ANIMALS.

In the February number of the *Botanical Gazette,* Dr. C. J. Chamberlain writes, "After hesitating for several years I have decided to publish my belief that animals exhibit an alternation of generations comparable with the alternation so well known in plants. In short, the theory is this: the egg with the three polar bodies constitutes a generation comparable with the female gametophyte in plants; similarly, the primary spermatocyte with the four spermatozoa constitutes a generation comparable with the male gametophyte

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.*"

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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.