thor introduces fifty-seven practical tests for their experimental demonstration. Some of these experiments are familiar to every student of plant physiology, while others are new, and in many cases quite novel. Some of them are to be performed in the laboratory, while others take the student out into the fields and forests.

The ninth chapter, on the origin of new forms, is again a philosophical presentation, including a summary discussion of the law of evolution, stability and plasticity, constant and inconstant forms, origin by adaptation, origin by variation, origin by mutation, natural selection, isolation, polygenesis, etc. Several instructive pages are given to Darwin and his predecessors and followers.

The remaining chapters include methods of studying vegetation, the plant formation, aggregation and migration, competition and ecesis, invasion and succession, alternation and succession. Even in these chapters some experimental work is suggested, so that the student will not depend wholly upon observation and camera-pictures for his conclusions! It is safe to say that the student who learns his ecology in the way it is presented in this book will not do as much guessing at his facts, and drawing of inferences from landscape photographs, as has been the habit of some of the "ecologists" of the immediate past.

CHARLES E. BESSEY
THE UNIVERSITY OF NEBRASKA

SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Comparative Neurology and Psychology for September contains two articles on animal behavior. Dr. C. H. Turner writes on "The Homing of Ants: An Experimental Study of Ant Behavior," concluding from an extensive series of field and laboratory experiments that ants find their way to and from the nest neither by tropisms nor by a homing instinct, but that they learn their way by experience. The elements which enter into this experience were subjected to experimental analysis. The second paper is by Dr. E. H. Harper, on "The Behavior of the Phantom Larvæ of *Corethra plumicornis* Fabricius." These larvæ have a very characteristic mode of locomotion in the water. They conform neither to the conventional mode of orientation laid down in the tropism scheme nor to the trial and error type of reaction, but rather to a unique type of reaction system of the larva.

THE last number of *Symons's Meteorological Magazine* contains the following note: "The five hundredth number of *Symons's Meteorological Magazine* is now before our readers, a fact of no little interest when the smallness of the public to which such a journal appeals is taken into account. When Mr. Symons produced No. 1 in February, 1866, he had already issued a "monthly rain circular," as a supplement to "British Rainfall" for several years, so that a greater antiquity might plausibly be claimed for the magazine than the numeral implies. The magazine, though small, has grown, and is not, we trust, incapable of further growth without departing from the original lines on which it was planned. As an independent organ of opinion in meteorological matters, it has, we believe, been of use in the past, and we hope that this usefulness will continue. We heartily thank the many friends who have helped us hitherto, and we look forward with confidence to a wider circle of readers.

DISCUSSION AND CORRESPONDENCE

THE PARASITISM OF NEOCOSMOSPORA

IN SCIENCE for September 13, 1907, Dr. Erwin F. Smith, of the Bureau of Plant Industry, U. S. Department of Agriculture, makes certain criticisms on work which the writer published some time ago in a bulletin of the Missouri Agricultural Experiment Station and in a note in SCIENCE.

My purpose in writing the papers mentioned was to record in permanent form observations which I had made in course of a study of the ginseng fungus. I submitted some conclusions which it seemed proper to draw, because there has been more or less disagreement on the parasitism of these fungi among mycologists.

Dr. Smith seems to think that the ginseng fungus is not identical with the watermelon fungus, although he himself does not appear to have done any work upon it. I am perfectly willing to admit that the two fungi may not prove to be identical, and will bear no personal ill will to any one who may establish the facts. There are, however, certain points in the communication mentioned on which a few words may be said at this time.

He doubts my identification of the ginseng fungus and criticizes me for not making "any comparative study of the two fungi, although it would have been easy" to obtain the melon fungus. I think that the following letter gives *one* very good reason why I was unable to compare the ginseng fungus with the wilt fungus he studied.

U. S DEPARTMENT OF AGRICULTURE,
Bureau of Plant Industry
Vegetable Pathological and Physiological Investigations
Laboratory of Plant Pathology.

WASHINGTON, D. C., Jan. 31, 1905

MR. HOWARD S. REED,
University of Missouri,
Columbia, Missouri

Dear Sir: In looking over my snowed-under desk yesterday I found your letter of October 27, and am very much afraid it was unanswered. I regret to say that I have no cultures of the fungus which you wish, to wit, *Neocosmospora*, described in Bulletin 17 of the Div. of Veg. Phys. and Path. I have not worked at all on the disease now for a long time and allowed all the cultures to die. It would really take all of one person's time, and perhaps rather more, to keep going in good condition cultures of all the things that we work with, and it occasionally happens that one or another dies, or is lost for the time. If I come across it again, I will try to keep in mind that you wish a culture.

Yours very truly,
(Sig.) ERWIN F. SMITH,
In Charge of Laboratory of
Plant Pathology

The fact that I did not find perithecia seems to impel a particularly sharp shaft of criticism at me. In this connection the reader will permit me to refer to the bulletin written by Dr. Smith, mentioned in the foregoing letter (p. 10).

> . . . the conidial stage of the watermelon fungus (spore taken in July from the interior of a vessel) has been cultivated for five years on a great variety of media, including potato, without showing a trace of perithecia, although from time to time special efforts were made to find a substratum which would lead to the production of perithecia. This is the strain of fungus which has proved so actively parasitic in the hands of the writer.

He states again (p. 11):

> No perithecia ever developed in any of the cultures made from internal or external conidia taken from the cotton or watermelon.

Having only the conidial stages to start with, it is not surprising that I did not obtain the perithecial stages.

In his haste to criticize my work he appears to have fallen into the same grievous heresy of which he accuses me. From what I said concerning the parasitism of *one* species of the form-genus *Fusarium*, he recklessly gained the impression that I had made sweeping statements concerning the parasitism of that entire genus. If he will take the trouble of again reading my note in SCIENCE[1] he will find that the closing sentence *especially restricts* my statements concerning weak parasitism to the form I isolated from the ginseng plant. After carefully reexamining the text of the bulletin and also the note, I find nothing which conveys the impressions which he has apparently gained. This seems to be an "unwarranted inference" in his "course in logic."

It is a matter of no little satisfaction that in this last communication he has reported the outcome of inoculation experiments by a colleague in which sterile soil was used. In his earlier work he used "good earth" but does not appear to have taken the very important precaution of excluding all other organisms from the soil. Considering the prevalence of other soil fungi, it is surprising that he should have neglected to insure

[1] Vol. XXIII., p. 751.

sterile conditions in his own work, and this was the point on which I based certain criticisms in the publication cited. It seems to me that this is the kind of work Dr. Smith "should have done and not left for some one else to do."

HOWARD S. REED

September 20, 1907

AN OFFICIAL LETTER ON "TEMPERANCE PHYSIOLOGIES"

THE circular letter below was recently received by certain publishing firms in New York City. While it was intended for the *guidance* of publishers, it will certainly be suggestive to educators who are interested in freedom in science teaching. Some comment follows the letter.

DEAR SIRS:

It is probably well known to you that the National Woman's Christian Temperance Union, through the department of Scientific Temperance Instruction, Mrs. Mary H. Hunt, former superintendent, has been active in securing the publication of good school physiologies and their introduction into the schools, and that heretofore satisfactory books have borne the printed announcement that they had been endorsed, such endorsement being signed by Mrs. Mary H. Hunt, or by some member of the Advisory Board as appointee of the National W. C. T. U.

You are also probably aware of the fact that Mrs. Hunt and the W. C. T. U. have been repeatedly accused of receiving royalties on "endorsed" physiologies. Having been assured by Mrs. Hunt that no such royalties were received by her, we have for years unhesitatingly and unreservedly denied that any royalties were received by the W. C. T. U. or by any representative of the organization. If any one has received any royalties on endorsed physiologies, such receipt of monies was wholly unauthorized by the W. C. T. U., was positively against its policy, and was never reported to the W. C. T. U.

Since the death of Mrs. Hunt our organization has considered very carefully the present situation and has decided upon the following policy:

1. The National W. C. T. U. will continue to encourage the publication of new series of physiologies to replace weak or old series now in use, and urgently requests that all good series be revised frequently, that they may be kept up to date in all scientific and pedagogical points.

2. We shall encourage the direct relation of authors and publishers, exerting our influence to help publishers to find thoroughly competent authors and to help such authors to find good publishers.

3. We shall request publishers of school physiologies to publish a note in the preface of each book giving the name of some well-known specialist in physiology who has approved the book as to its scientific accuracy, especially concerning the latest deductions of science on the alcohol question, and that of some well-known educator who has approved the book as to its pedagogy.

Our world's and national superintendent of the Department of Scientific Temperance Instruction in Schools and Colleges and director of the Bureau of Scientific Temperance Investigation is Mrs. Edith Smith Davis, 2913 Brown St., Milwaukee, Wisconsin, a woman admirably fitted to lead this great department of our work. Mrs. Davis will have associated with her a number of well-known men in the scientific and educational world as counsellors of the department. Any scientists or educators acceptable to Mrs. Davis and her counsellors whose endorsement you may secure for your books will ensure the hearty cooperation of the National W. C. T. U. in the circulation of said books. Any physiology which fails to meet a high and satisfactory standard on the question of the effect of alcohol and narcotics on the human system will be publicly disapproved by the National W. C. T. U. and our local unions over the entire country will work against the introduction of such books into the schools.

We shall show no partiality between publishers of satisfactory text-books and will continue to do all we can to secure the teaching of physiology and hygiene in the schools, and to secure the introduction of good books.

Yours for the presentation of unbiased truth, on behalf of the General Officers of the National W. C. T. U.

This letter was signed by the president and secretary of the National W. C. T. U.

The letter has the following interesting points:

1. The question of royalties said to have been received is one of minor importance to scientific educators. Certainly no one ever believed that the W. C. T. U. as an organization could ever have descended to vote approval for accepting "royalties."

2. Scientific teachers are glad to know that publishers will be "encouraged to replace weak