diseases increases, we find that not only are they to be found in the tropics, but also to a greater or less extent in our own country.

The book is divided into several parts, beginning, of course, with the usual introduction, but in this case including a discussion of tropical hygiene. The treatment of this subject denotes a familiarity with conditions as found in the tropics obtained only by experience, and if the advice given were followed, it would materially decrease the amount of sickness and the number of deaths occurring among those living there.

That portion of the book which treats of mosquitoes, though brief, is well worth studying for those likely to be brought into contact with either malaria or yellow fever.

The book is written in a narrative style, the usual text-book description of the subjects being given, but with sufficient personal experiences interspersed to lend an added interest to the subject under discussion.

The book is divided into three parts, the first part dealing with "Systemic Diseases (Chiefly Bacterial in Origin)." This section is mainly concerned with a discussion of the infectious diseases.

Under the heading of Cholera, the description of bacteriologic technic to be used for diagnostic purposes is faulty and not clear, and leaves the impression that a mere novice could make a diagnosis, whereas, as is well known, cases arise which offer great difficulty, from the presence of other spirilla giving similar reactions and only differentiated by agglutination or animal experiments. The author lays considerable stress on the use of the anti-cholera serum prepared by the Japanese, which, he says, has an anti-toxic action.

It is surprising to note, as is stated, that Haffkine's prophylactic had never been used as a curative agent for plague; its use for such a purpose would certainly seem contra-indicated. Under the same heading, the author recommends for the agglutination test that "the serum be diluted with normal salt solution to a proportion of 1:3." It is very doubtful whether agglutination obtained with such a dilution would be of any value.

The chapter on malaria is written in a more detailed way than those on the other diseases.

The author apparently believes in the infectious nature of beri-beri, accepting the work of Wright, though giving rather full abstracts of the report of Baron Takaki of the Japanese navy, who ascribes the marked decrease in the number of cases in the Japanese navy to a change of diet consisting of the addition of barley and an increased amount of meat to the usual rice diet.

In the chapter on yellow fever, considerable space is justly given to the work of Reed, Carroll, Agramonte and Lazear, composing the board appointed by the government for the study of yellow fever.

The second part is taken up with a discussion of diseases produced by animal parasites. The chapter on ankylostomiasis is excellent, the author here again detailing his own experiences. The remainder of this section is taken up with a discussion of filariasis, trypanosomiasis and those diseases produced by parasites peculiar to the tropics.

The third part treats of diseases of undetermined causation and of the skin. Under this heading is to be found a brief description of such diseases as acute febrile icterus, mycetoma, tropical splenomegaly and of some of the parasitic skin diseases.

At the end is a list of articles recommended for diagnostic purposes which would undoubtedly be of great value for any practising physician.

A perusal of the book would be of benefit to any one likely to come into relation with tropical diseases.

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Discussion and Correspondence

On the Effects of Magnesium Sulphate on the Growth of Seedlings

A recent issue of Science contains a letter from Professor Oscar Loew, which, for some unaccountable reason, is entitled "a correction." I have read the letter carefully several

times in an endeavor to find in it the promised "rectification," but without success. It is obvious, however, that, in the letter referred to, Professor Loew announced a particular text, then read into it miscellaneous matters that were off the subject and next proceeded to belabor the men of straw his imagination introduced to the reader.

Professor Loew began the letter as follows:

A statement on page 452 of SCIENCE of March 22 requires a rectification in the interest of the unprejudiced reader.

The sentence in question reads as follows:

"These results show conclusively that magnesium sulphate in proper dilution is beneficial to the growth of seedlings, and that any inhibitory effects are due to the presence of excessive amounts, thus controverting Loew's theory that magnesium salts when alone in solution are always injurious to plant growth."

This quotation from the abstract of Miss Burlingham's communication at the last meeting of the Biological Section of the American Chemical Society was followed, in Professor Loew's letter, by the remarks quoted below (1–6), to each of which I have appended a brief reply from our own standpoint, the pertinence of which the reader, having the above quoted sentence before him, will have no difficulty in determining:

"Permit me," Professor Loew went on, "the following remarks regarding this remarkable sentence" (the one quoted above):

1. It is not a *theory* that magnesium salts act poisonously on plants; it is a *fact.*

Miss Burlingham did not say it is a "*theory* that magnesium salts act poisonously on plants"; she herself witnessed such poisonous action repeatedly, and wrote as follows about this very "*fact*" in her abstract, although Professor Loew has not seen fit to quote it: "Magnesium sulphate . . . is usually toxic in strengths greater than *m*/8,192 (0.003 per cent.)"; anhydrous, 0.00147 per cent.

2. Not only Loew, but also others have observed the same fact. Loew has merely furnished an explanation well in accord with certain observations.

Miss Burlingham did not intimate that Professor Loew was the only investigator who had "observed the same fact," *i. e.*, that "magnesium salts act poisonously on plants." She knew quite well there were others, among them herself, as is indicated in the above quotation from her abstract that Professor Loew failed to notice. She did not allude to Professor Loew's "explanation that is well in accord with certain observations." She referred, however, in the words indicated, to "Loew's theory that magnesium salts when alone in solution are *always* injurious to plant growth." Professor Loew did not discuss the latter point in his letter, however, although he might well have done so to the exclusion of the matters he introduced without warrant. Why did he refrain from correcting the essential point in his quotation? *Are* "magnesium salts when alone in solution *always* injurious to plant growth"?

3. The doses at which magnesium salts, applied alone, are poisonous for plants can *impossibly* be called *excessive,* since even at 0.02 per cent. a poisonous action of magnesium salts on algæ can be observed, while calcium nitrate is not in the least injurious for algæ at even 1 per cent.

"*Excessive*" is, of course, a relative term and Miss Burlingham used it as such. In the abstract from which Professor Loew quoted the "remarkable sentence" which, according to him, "*requires* rectification in the interest of the unprejudiced reader," but which he proceeded aggressively to misconstrue, regardless of what the "interest of the unprejudiced reader *required,*" Miss Burlingham wrote as follows: "It was found that while magnesium sulphate is usually toxic in strengths greater than *m*/8,192 (0.003 per cent.), it produces decided stimulation in *m*/16,384, reaches a maximum stimulation at dilutions from *m*/32,768 to *m*/131,072 (0.00075 per cent. to 0.00018 per cent.), then beyond this point gradually diminishes in action. . . . Seedlings allowed to grow for several weeks in a dilution of magnesium sulphate which was at first slightly toxic finally developed strong lateral roots and attained a root growth far beyond the control." It is obvious that Miss Burlingham used the term "excessive" to apply to "strengths greater than *m*/8,192

(0.003 per cent.)," *i. e.*, of magnesium sulphate (anhydrous, 0.00147 per cent.).

4. It is a well-known fact that many compounds that act poisonously at a certain concentration can act in very high dilution as stimulants of growth.

Miss Burlingham said nothing to the contrary. She found nothing in opposition to it. There is nothing in her abstract to warrant the inference that she was not aware of this "well-known fact."

5. It is erroneous to attribute this stimulating action to any nutritive quality of the poison.

Miss Burlingham did not "attribute this stimulating action to any *nutritive* quality of the poison." She said her results "show conclusively that magnesium sulphate in *proper* dilution is *beneficial* to the growth of seedlings." She did not offer any explanation of her preliminary results, merely stated them.

It is ridiculous for Professor Loew to assume that Miss Burlingham exhibited prejudice in her abstract, for neither she nor I had any preconceived notions to establish, nor any theories to maintain. Her conclusions were drawn impartially from her results.

Professor Loew concluded his letter with the following unbiased allusion:

6. The unprejudiced reader who desires some information as to the nutritive rôle of magnesium salts in plants and to the conditions under which this function can be performed, is kindly requested to consult Bulletin No. 45 of the Bureau of Plant Industry, "The Physiological Rôle of Mineral Nutrients in Plants," Washington, 1903.

I cheerfully commend "Bulletin No. 45," of which Professor Loew is the author, to the attention of any one wishing "information as to the nutritive rôle of magnesium salts in plants and to the conditions under which this function can be performed." The said bulletin is the most valuable single contribution to our knowledge of the questions discussed in it, and reflects brightly the flood of light that Professor Loew has thrown upon the subject since he undertook its investigation. Nevertheless the "unprejudiced reader" of it will certainly conclude, after studying "Bulletin No. 45," that there is probably very much more for all of us, including Professor Loew, to learn about the "nutritive rôle of magnesium salts in plants" and "on the conditions under which this function can be performed." The "unprejudiced reader" will also surely welcome such earnest attempts as Miss Burlingham's to extend our information on details of the subject.

Miss Burlingham's preliminary paper appeared in the July number of the Journal of the American Chemical Society. It gives the data upon which were based the remarks in her abstract that Professor Loew has misinterpreted for the "unprejudiced reader." It makes further comment here unnecessary.

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A NOTE ON CERTAIN WIDELY DISTRIBUTED LEAFHOPPERS (HEMIPTERA)

Certain leafhoppers have more or less recently become notorious for the damage they occasion to various cereals, such as sugar-cane and sorghum. *Perkinsiella saccharicida* (Kirkaldy) has done much damage in Hawaii, having been introduced from Queensland, where, however, it is not native. It is to be found wherever sugar-cane is grown in Australia and Hawaii, and I have recently received it from Java. *Peregrinus maidis* (Ashmead) was described from maize in Florida and is now widely distributed over the southern United States; it has an even wider range now than *Perkinsiella saccharicida*, for it is all through eastern Australia, Hawaii, Viti and, I think, Java, while Mr. Distant has recently redescribed it as *Pundaluoya simplicia* from Ceylon.

G. W. Kirkaldy

SPECIAL ARTICLES

COLOR INHERITANCE AND SEX INHERITANCE IN CERTAIN APHIDS

The color changes that occur in the sexual generation of certain aphids, and the correlation of a definite color with each sex, have suggested that these insects may furnish favorable material for testing the possibility