twenty-five years of service? If disabled or incapacitated the foundation makes such retirement a possibility, and doubtless a welcome one to some few to whom fate has been or may be unkind. But the average professor after twenty-five years of service is at his best as regards maturity, solid productive ability, and influence over youth through the poise and weight given by years and experience. Personally, I should hate to retire after twenty-five years of work, though I admit that the power thus to enjoy one's *otium cum dignitate* as a well-earned reward, and the possibility of doing just the work one likes best without hampering scholastic duties appeals strongly to universal human nature, and confess that it might conceivably appeal very strongly to me.

I know of several men, personally in one or two cases and by hearsay in other cases, who had hoped to take advantage of the twenty-five-year provision within a few years. As far as I know, they are all doing good and valuable work, are all in good health, are under fifty-five—in one case by a considerable margin—and I do not believe that they are worked too hard. All are thoroughly honorable, upright men, and are honest with themselves in believing that they are justified in trying to take advantage of this provision. Personally, and perhaps wrongly, I feel that their retirement at this time would be to some extent a misuse of the foundation, and amounts almost to a desertion of their post of duty. Were we in a Utopia where all, business men, mechanics, professors and scientists, could rest and play after reaching fifty, we as a world might be much happier. By "rest and play" I mean working hard at the work we love best. Till we reach that Atlantis, however, our thanks for the blessing of work as long as we can work.

Doubtless the men to whom I have referred will continue their productive work, though one had no definite plans other than retirement to his farm. Now I may not know all the circumstances which prompted these men to seek retirement after twenty-five years of service, but I can not feel that the purposes of the foundation would have been strictly adhered to should this be granted them. I can not feel that the withdrawal of the privilege of retirement after twenty-five years works any injustice; the error came in lack of foresight in announcing this provision at the start. We need vigorous, young, enthusiastic men, but the more respected, well-poised, experienced men between fifty and sixty-five *plus* we can keep on our faculties, the better for our institutions. Z.

SCIENTIFIC BOOKS

The Gulick Hygiene Series. By LUTHER HALSEY GULICK. Book One: *Good Health.* By FRANCES GULICK JEWETT. List price 40 c. Book Two: *Emergencies.* By CHARLOTTE VETTER GULICK. List price 40 c. Book Three: *Town and City.* By FRANCES GULICK JEWETT. List price 50 c. Book Four: *The Body at Work.* By FRANCES GULICK JEWETT. List price 50 c. Book Five: *Control of Body and Mind.* By FRANCES GULICK JEWETT. List price 50 c. Boston, Ginn and Co.

The editor states the objects and general plan of these books as follows:

> The objects of this series of books on hygiene is to teach the fundamental facts of health in such a way that the teaching shall result in the formation of health habits by the children. . . . In order to maintain the interest and avoid the deadening effect of the annual review of identical subjects, I have endeavored to supply each year some distinctive and separate line of thought in hygienic directions. . . . The style of the series is rather that of the story than that of the text-book.
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> In four respects we have attempted in this series to do what so far as we know, has not been attempted before. (1) We have endeavored to present to children a series of texts in which the central theme shall be hygiene. The current text books treat of physiology and anatomy primarily. . . . (2) It is the purpose of this series to treat each subject in a purely scientific as distinguished from a philosophical manner. . . . (3) We have presented a new point of view in each volume. . . . (4) These little volumes have been prepared with the same kind of utilization of original works as if they had been intended for adult scientific workers.

The volume entitled "Good Health" was written for the fourth grade. In this a general view is taken of the subject. Scarcely any anatomy and relatively little physiology are given, the main contents of the book consisting of concrete and interesting facts relating to pure air, tobacco, cleanliness, sleeping, eye-sight, alcohol, hearing, finger nails, hair, care of nose and teeth, and eating.

The second volume in the series, "Emergencies," approaches the subject of the formation of habits from the standpoint of the emergencies which come to children. The skin is discussed . . . from that [standpoint] of blisters and burns. The habits that it is desirable for children to form with reference to conduct during emergencies form the subject matter of the year. . . .

The volume "Town and City," which is prepared for the sixth year of school life, presents the subject of hygiene from the standpoint of the community, and habits of action which have a social bearing are discussed; . . . the results of overcrowding, clean streets, garbage, ashes and refuse, parks, playgrounds, public baths, water supply, preventable diseases, food inspection, epidemics, vaccination, tuberculosis, city health, alcohol, microbes and disease. These are all topics in which individual action is involved. In all of them the relation and special emphasis are with reference to the state. The book is thus made an agency for the formation of habits having a community bearing.

The fourth volume, "The Body at Work," which is intended for the seventh grade, covers somewhat in detail the subjects ordinarily covered in the standard physiologies, but emphasis is laid on the training of the body for efficiency. Thus much is said concerning the importance of good posture and how to secure it; how one trains the muscles of the body that they may be efficient, enduring and strong; the nature and character of useful exercise; how digestion is most efficiently carried on. . . .

The closing volume of the series relates directly to the establishment of habits themselves— "Control of Mind and Body." In this book is discussed with some detail how habits are formed, not so much as a theory but as an experience; how habits are broken, fatigue, the wholesome development of the brain and spinal cord, the freedom which well-ordered habits give to the person who has them, the nerve endings, their care, etc. The whole purpose of the book is to give the individual that information which is related to the establishment of wholesome habits, particularly wholesome habits which shall be effective in the control of conduct.

A careful examination of these books justifies the following characterization:

1. They are written in a clear, readable style that is attractive and likely to be interesting to children.

2. They represent a serial story rather than a series of elementary and more advanced presentations of the same material. Each book is a new book on a new subject (as compared to the preceding book).

3. The facts presented are drawn largely from the results of accepted scientific investigations. The authors have made painstaking use of recent authoritative, scientific literature (for example note the discussion of the structure and physiology of the brain, and Cannon's experiments on intestinal movements).

4. The general motive, as indicated in the prefaces, is of a high order. The authors aim at human efficiency. The acquisition and conservation of health is regarded as an indispensable means to that higher end.

5. These qualities combine to make this an exceptional series of books, appearing in marked contrast with the conventional school text with its stereotyped style, its repetitions of text and illustration, its philosophical origin and consequent scientific inaccuracy, its limited scope, and its narrow ideal.

Several minor criticisms may be advanced as follows:

1. Book one, "Good Health," would be more complete if it contained some reference to the care of the excretions.

The system of ventilation shown diagrammatically on page 28 is an approved plan. It is backed by some of our best authorities. It is only fair to say, however, that such systems rarely work.

2. Some of the treatment given in book two, "Emergencies," is too advanced for children of the fifth grade. It contains a good deal of treatment that should be administered only by persons of some maturity.

Poisonous antiseptics should not be trusted to irresponsible children. The chapters on foreign bodies in the eye, on bandaging, and on poisons and their treatment, contain methods of treatment which would be unsafe in the hands of children.

3. One would expect a discussion of the "typhoid fly" in book three, "Town and City." Investigations of the last few years indicate that the fly is a most important factor in community hygiene.

The investigations of Meylan on smoking which have appeared since this book was written seem to throw considerable doubt upon the method and conclusions of Dr. Seaver's work, which is so liberally quoted in this book. Many of our discussions of the injurious effects of tobacco and alcohol need the careful and painstaking supervision of a trained investigator. It is easy to make serious mistakes in drawing conclusions from experiments and observations which are not properly checked with controls, or in comparing effects when the causes are complex and diverse, and therefore not productive of effects that will permit legitimate comparisons.

4. Book four, "The Body at Work," emphasizes good posture. There can be no doubt concerning the evils that accompany marked spinal curvature or a marked flattening of the chest with a great rounding of the shoulders. But so far as I know, we have arrived at our conclusions relative to cause and effect in these conditions philosophically and not scientifically. In addition I must admit, no matter how it offends my esthetic taste, that I have seen very few perfectly straight backs and shoulders. Most men have a stoop, and nearly all of us show a spinal deviation.

It would appear on pages 29 and 30 that the cuts there given represent either smooth muscle fibers, or nucleated forms of lower animals. They are not the human striated variety which is there under discussion.

Page 31. The soleus and gastrocnemius muscles seem to have exchanged names—a very slight error and of no consequence.

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Agricultural Bacteriology. By Professor H. W. CONN, Wesleyan University.

The second edition of Conn's "Agricultural Bacteriology" has been materially reduced in volume and has been brought more within the compass of a text suitable to the needs of students in agricultural colleges. It rightly emphasizes the great importance of microbes to fermentative activities, as this type of organisms is of much moment in agricultural processes, both favorable and unfavorable.

While covering the ground on the whole in a thorough manner, the volume is marred, however, by a certain looseness of statement in some of its chapters that is a serious defect in a classroom text, and the book contains altogether too many typographical and textual errors for a second edition.

To cite a few: "Fermentation and decay (p. 26) are defined as progressive chemical changes taking place under the influence of organic substances (evidently organized substances is intended), which are present in small quantity in the fermenting mass."

Decay and putrefaction are characterized as decomposition of proteid matter, the distinction being that decay occurs in the presence of oxygen, while putrefaction takes place in its absence. It is, of course, well recognized that decay of carbonaceous matter occurs, and that meat and other proteids may also putrefy in contact with the air.

The nitrates in the soil are stated (p. 47) as ranging from 0.1–0.2 per cent. This figure accords more nearly with the total nitrogen content of the soil. "Nitrites are changed to nitrates by the addition of another atom of nitrogen" (p. 57), meaning, of course, oxygen.

Speaking of the *Azotobacter* type (p. 94) they are regarded as more vigorous than the aerobic type (*Clostridium*), meaning *an*aerobic. The bacteroids of legumes are repeatedly referred to (p. 99) as bacterioids. The bacteria concerned in manure production are all regarded as putrefying organisms (p. 109), while, of course, it is well recognized that