

organized at his own expense a Department of Applied Electricity; in 1888 he organized the Department of Engineering Practice, in both cases contributing liberally toward the equipment and endowment of the new chairs. In 1892 he placed an additional \$20,000 in the hands of the trustees for this last-named department. Later, at the celebration of the twenty-fifth anniversary of the organization of the institution, he gave it about \$25,000, in 1900 \$15,000 and again in 1901, \$50,000. His total contributions to the funds of the college probably amounted to \$150,000, including numerous small and unrecorded gifts of apparatus.

President Morton in 1878 was elected a member of the U. S. Lighthouse Board, filling the vacancy produced by the death of Professor Henry. He was a member of the National Academy of Sciences from 1873. He was Ph.D. (Dickinson, 1869, Princeton, 1870) and in 1897 was made D.Sc. (Pennsylvania) and LL.D. (Princeton). He was a member of many learned and technical associations, at home and abroad.

The personal character of President Morton compelled respect and admiration. Cultured, scholarly, acute and brilliant, he exhibited in every way intellectual superiority. Broad-minded, of good judgment and possessing unusual force, his moral side was admirable and impressive. He was generous to a fault, liberal in sentiment, and devout. At home in all social relations and adapting himself to any society, he influenced strongly every person with whom he came in contact and his welcome was warmest in the most intellectual gatherings. His fine personality and his earnestness in the pursuit of his lofty aim compelled the sympathy and induced the active cooperation of Mr. Carnegie, and the most important and most valuable and productive of accessions to the equipment of

his college was the recently erected 'Carnegie Engineering Laboratory.' He was himself generous to a fault in other directions than the promotion of technical education, and his friends and neighbors, both at his home in Hoboken and in his summer home at Pine Hills, testify to his constant and liberal contributions to all good works; so quietly and unobtrusively were these private philanthropies conducted, that it is probable that very few of his friends were aware of their extent.

The death of President Morton is an event of serious importance as a loss to science, to the cause of education and to a large social circle; it is a catastrophe for the institution over which he presided for so many years and which he brought to such a prominent position among professional schools, and to his family and friends. He will always have a memorial in his valuable contributions to science, and the already famous school organized by him will permanently stand a monument of larger real value and importance than that construction which commemorates its architect with the inscription '*Si monumentum requiris, circumspice.*'

R. H. THURSTON.

#### SCIENTIFIC BOOKS.

*Hygiene for Students.* By EDWARD F. WILLOUGHBY, M.D. London, Macmillan & Co. 1901. Pp. 563.

This excellent volume appears under a new title, but is in reality a fourth enlarged and improved edition of his 'Principles of Hygiene' first published in 1884. Dr. Willoughby needs no introduction to the American reader, since he has been for a number of years the European editor in charge of the Department of Hygiene and Public Health in the *American Journal of the Medical Sciences*, and we may expect therefore that he speaks authoritatively on all matters pertaining to his specialty. The volume is divided into six parts and twenty chapters. Part I. deals

with the health of the man, and chapters one to six treat of the food-stuffs, stimulants, condiments, cooking and preparation of food, clothing, habits, exercise, rest, etc. Part II. is devoted to the health of the house, with chapters on sites and aspects for dwellings, ventilation, heating, lighting, plumbing, etc. Part III. deals with the factors which influence the health of the city, such as water supplies, sewerage and scavenging of towns. Part IV. deals with the health of the people, more especially the preventable diseases; chapter seventeen is devoted to school hygiene, and chapter eighteen to the health of the workshop; chapter nineteen to vital statistics and tables of comparative mortality, and chapter twenty to meteorology and climate. The presentation of the subject is clear, concise, logical and exact, and the student cannot fail to be impressed with the value of such a work. The summary of each chapter and the questions on each chapter will also serve a very useful purpose, in so far as they emphasize the salient points discussed.

In his chapter on food-stuffs, he points out the injurious effects of an excess or undue preponderance of one or the other of three principal alimentary principles, viz., the albuminates, fats and carbohydrates, which should prove of great practical value.

The chapter on stimulants and condiments is a very able presentation of the physiological effects of these so-called accessory foods, which when taken in moderation are what the Germans call 'Genussmittel,' or means of enjoyment, as contrasted with the true foods or means of nourishment. The author's views on the subject of the use and abuse of alcohol are quite in accord with scientific facts, and his summary reads: 'Alcohol is a stimulant for good or ill, in excess narcotic, habitual excess leads to degeneration of the tissues, especially of the brain and liver.'

Our knowledge of the effects of alcohol may be summed up as follows: In moderate and diluted doses it evidently stimulates digestion, as shown by its beneficial effects after a hearty meal, but large quantities interfere with or arrest the peptonizing process and frequently produce acute gastric catarrh. These

effects are observed when alcohol is present to the extent of 10 per cent. of the gastric contents. Alcohol also exerts a marked diuretic effect which is due to a direct irritation of the renal epithelium. The habitual use of immoderate doses produces chronic gastric catarrh, with consequent impaired digestion and nutrition. It produces fatty degeneration of the heart, liver and arterial coats, probably because it promotes the conversion of albuminoids into fats, the connective tissue of the body increases in amount and its subsequent contraction gives rise to cirrhosis of the liver, Bright's disease and chronic meningitis. Alcohol also produces structural changes of the cells of the brain and spinal cord and leads to a general physical, mental and moral deterioration, which is often transmitted to the offspring.

On the whole we may conclude that alcohol is an accessory food of value only when it becomes necessary to increase temporarily the elasticity of mind and body and a desire and capacity of work, but the subsequent depressing effects and the baneful influence of its misuse should make us careful in its employment even for therapeutic purposes, especially when rest, proper food and some of the alkaloidal beverages and stimulants may accomplish the same purpose. For persons in health, alcohol in any form presents no advantages not found in other food-stuffs or stimulants, and which are, moreover, free from the dangers attending its use. While it is quite true, as expressed by Dr. Gairdner, that alcoholic drinks are at times a very enjoyable and harmless luxury when honestly tested by experience and kept within bounds by reason and prudence, the facts are that during the past decade there has been a marked increase in this country in the rate of Bright's disease, heart disease, dropsy and pneumonia, and the immoderate use of alcoholic beverages may be a factor in the development of these diseases.

Chapters six, seven, eight, nine and ten on habits, exercise, rest, sleep, idiosyncrasies, heredity and the hygiene of habitations are of special interest to the general reader.

Chapter ten on potable waters and the ef-

fects of impure water; Chapter twelve on water purification, and Chapter thirteen on scavenging of towns and sewage disposal, are very complete indeed for a book of this size. Under the head of sewage disposal he has withdrawn all descriptions of the chemical methods of treatment, but has very fully explained the theory and working of the bacterial tank and filters, which he very justly maintains should be adopted wherever irrigation cannot be advantageously carried out. His discussion of river pollution by the general introduction of sewage and the wastes of human life and occupation is brief, but sufficiently pointed to show that few streams can be used with perfect safety as sources of public water supply.

In speaking of the disposal of the dead, the author makes a strong plea for cremation, but deems it in the highest degree improbable that, for many generations at any rate, there will be any appreciable change in the practice of interment, sanctioned as it is by usage, sentiment and prejudices. He considers the fear that cremation would, by precluding subsequent examination, serve to conceal, if not offer an inducement to, crime as exaggerated or groundless, and shows how cremation might be made to lead to the detection of crime as it has already done in Italy, by exacting a more rigid system of certificates of death from the medical attendant, and in doubtful cases a post-mortem examination.

Chapters fifteen and sixteen, on preventable diseases, immunity and disinfection, are fully up-to-date and of great value, as is also the chapter on school hygiene, especially the discussion of the excessive and misdirected mental work. His long and practical experience as a physician, sanitarian and school manager entitles him to speak with authority on the subject. His chapters on the health in the workshop, comparative mortality of various professions and trades, meteorology, climate and health resorts contain a fund of useful information not generally found in a work of this character. On the whole the student of hygiene is to be congratulated upon the appearance of this very accurate and complete book.

GEO. M. KOBER.

*Forstästhetik.* By HEINRICH VON SALISCH. Berlin, Julius Springer. Second edition. Octavo, paper cover. Pp. 314. Illustrated with sixteen full-page heliotypes and fifty-nine half-tones and figures.

This book treats of woodland scenery in its relation to the science of forestry. The author describes in detail the scenic beauty of the artificial forests of Germany. These have long been subjected to systematic methods of treatment, and although the ostensible object has been solely to increase the practical value of the forests, they have incidentally been given a distinctive character that is well worth our study. The subject should interest Americans because the forestry movement that is now so rapidly gaining ground in the United States must, in its practical application, ultimately affect our wooded landscapes.

The book comprises two parts, the first of which opens with an introductory chapter on the relation between the economic and the æsthetic aspects of forestry. Then follow several chapters on the nature of beauty and our capacity to understand its various modes of expression. The remainder of Part I. shows how this beauty is revealed by the various components of the forest.

In Part II. the author enters into a careful discussion of the æsthetic effects that are due to the various operations of forestry, such as the construction of road systems, the choice of species in renewing the forest, the methods of sowing and planting, and the different systems that regulate the cutting of the timber. The concluding chapters treat of certain principles of landscape art that in the author's opinion may advantageously be applied to the practical forestry of Germany.

The author is thoroughly familiar with his subject in its utilitarian as well as its æsthetic aspects, and has produced a work of decided value. His manner of treatment shows exceptional powers of discrimination, particularly in matters of taste. The book contains many extracts from writers who have incidentally touched upon forest æsthetics, thus affording an opportunity for a broad but liberal criticism of the various points of view. While Mr. von Salisch therefore does not