on the significance of 'bonds' in structural formulas, by Spencer B. Newberry; on positive and negative units of valence, by Albert B. Prescott. *Physiological Chemistry*, on the percentage of ash in human bones of different ages, by W. P. Mason; on chemical changes accompanying osmose in living organisms as illustrated by the oyster, by W. O. Atwater; on the delicacy of the sense of taste, by E. H. S. Bailey and E. L. Nichols; on the scientific basis of feeding infants, by A. R. Leeds. *Medical Chemistry*, on the causes, progress, and cure of a recent great outburst of typhoid-fever at Mount Holly, N.J., by Albert R. Leeds. *Committee Reports*, on methods of stating water-analysis, by G. C. Caldwell; on indexing chemical literature, by H. C. Bolton.

Prof. L. M. Norton, in his experiments in drying oils, has detected the presence of several fatty acids, which are not mentioned in the books. Especially is this the case with cottonseed-oil, which contains several acids in addition to oleic. Owing to easy oxidation, it is difficult to separate these acids. The method of distillation in a vacuum was found most effective. Prof. T. H. Norton's papers on organic chemistry disclosed numerous lines of original investigation undertaken in connection with advanced students, and emphasized the growing importance of mingling original researches with instruction, which is now practised so successfully by the leading laboratories of the world. The papers on analytical chemistry contained nothing of general scientific interest. The alloys of copper and antimony and of calcium and zinc presented by Professor Norton disclosed many important facts. He found it impossible by any known method to obtain an alloy of zinc and calcium containing more than five or six per cent of the latter metal. The properties of the compound are also profoundly affected by the proportion of calcium present.

Dr. Wiley presented, in the paper on sorghum, the means of all the recorded analyses of sorghum-juices. The important fact is brought to light that this average juice is unfit for sugar-making, containing at the rate of a little over twenty pounds of available sugar to the ton of cane. In many instances, however, the percentage of sucrose in the juice is remarkably high. The successful solution of the problem of sugar-making from sorghum depends on the production of a uniform grade of sorghum reasonably rich in sucrose. This should be the work of the agricultural experiment-stations.

The sense of taste, as shown by the experiments of Professors Bailey and Nichols, is in general more delicate in females than in males. Bitter is detected in far greater dilutions than sweet or saline tastes.

This session of Section C was remarkable in being almost free from papers of a 'cranky' nature. No lurid schemes for the regeneration of the human race by chemical affinity were presented, and no intensely improbable properties of matter were described. While many of the papers were crude and some of them quite elementary, it is nevertheless true that the Chemical Section is progressing in numbers and influence and the character of its work.

Section I.

THE Section of Economic Science and Statistics this year exercised its usual latitude in the consideration of a great variety of subjects; but, under the close scrutiny of its sectional committee and the rulings of its chairman, everything objectionable was excluded and a high standard maintained. Thus, while all the subjects presented were treated in a scientific manner, the proceedings were so conducted as to meet with popular favor. Although inconveniently located on the upper floor of Hamilton Hall, so that those unacquainted with the ways of the association had difficulty in finding the place, the sessions of this section opened with a room nearly full, on Thursday, and the attendance daily increased until the closing session on Tuesday (Aug. 23), when the hall was uncomfortably crowded by the largest audience present at any sectional meeting during the week.

'The Food-Question' was, by special arrangement, made the sole topic for Thursday. The sessions, both forenoon and afternoon, were opened by Prof. W. O. Atwater of Connecticut, who treated the subject much after the style of his articles in current issues of *The Century Magazine*. He was enabled to add much interest by a fine collection of illustrative material, some of the charts being his own, but the rest prepared at the Massachusetts Institute of Technology, and loaned for this occasion by The Industrial Education Association of No. 9 University Place in this city, through the kindness of Miss H. R. Burns. Much interest was manifested at both sessions, and the discussion took a wide range, including the economy of food in its physiological and pecuniary aspects, the food of workingmen in its relation to work done, and the preparation of food, together with the 'cooking-schools' and their results. The most prominent participants in the discussions of the day were Prof. W. H. Brewer of New Haven, E. J. James of Philadelphia, S. A. Lattimore of Rochester, J. M. Ordway of New Orleans, Dr. D. E. Salmon of Washington, Mrs. Richards and Mrs. Lincoln of Boston, and R. T. Colburn of this city.

On Friday the section gave its attention to statistical and financial questions. The leading paper was by Prof. Edmund J. James of the University of Pennsylvania, and was mainly a sharp and well-presented criticism of the recent essays of Mr. Edward Atkinson upon the growth and rapidly increasing wealth of this country. Dr. James showed grave omissions in Mr. Atkinson's figures, which greatly modified the deductions from them, and, by marshalling the same statistics in a different form, reached very different conclusions, both as to the country's accumulating wealth as a whole, and the earnings of laborers. Charles S. Hill of Washington followed with a statistical paper somewhat similar in character. Then E. B. Elliott, actuary of the Treasury Department, continued his last year's exhibit of the rates of interest realized by investors in the bonded securities of the United States. He showed, that, based upon the market-prices of the government 4 and 4½ per cent bonds, the actual interest during the past year has never exceeded 2½ per cent, and at times it has fallen below 2 per cent. He predicted a net rate for some time to come, closely approximating 2 per cent.

As with the other sections, business was suspended from Friday noon till Monday morning, by the various excursions, — an interruption emphatically disapproved by many active members.

The morning session of Monday took a rather philosophic turn, although the title of the paper which gave rise to most discussion made a claim to belonging within the realm of science: it was 'The Science of Civics,' by Dr. Henry Randall Waite, and while covering broader ground, served especially as an argument and justification for the American Institute of Civics, of which Dr. Waite is president, and its work. An animated discussion ensued, dealing with ethics, politics (in its best sense), and economics, and their relations to one another. Monday afternoon, Section I joined with that of Mechanical Science in considering the question of Isthmian transit. This subject in its various bearings was clearly presented by Commodore Taylor, Surgeon Bransford, and Engineer Peary, of the United States Navy, and Mr. J. W. Miller of this city; and the interested audience seemed well convinced of the superiority of the ship-canal and the Nicaragua route over all other schemes, and the certainty of the early completion of this enterprise by American capital, and to be under the control of the United States.

Manual training, its methods and results, in public schools and special institutions, from economical, industrial, and educational aspects, formed the principal subject of the final session of the section on Tuesday. Prof. Calvin M. Woodward of St. Louis, and Prof. James of Philadelphia, read papers, and a general discussion followed entirely favorable to manual training in every form.

Yan Phou Lee of New Haven closed the session with an eloquent address upon the Chinese question from a Chinese standpoint, delivered before as large and enthusiastic an audience as any assembled at Columbia College during the meeting of the association. It was a telling arraignment of the policy and conduct of the United States in reference to the Chinese, and reminded one of an epitome of Helen Hunt Jackson's 'Century of Dishonor.'

HEALTH MATTERS.

Cure of Consumption.

AMONG the first to use Bergeon's treatment for the cure of consumption by gaeous enemata in this country, and certainly the first in Philadelphia, was Dr. E. T. Bruen. As a result of the treatment

of twenty-five patients, Dr. Bruen deduced the following conclusions: —

1. In nearly all cases lasting effects have been secured in the reduction of temperature, suspension of night-sweats, lessened cough and expectoration, and in some all physical signs of bronchial catarrh abolished.

2. Temporarily reduction of pulse-rate fifteen to twenty beats, and temperature one-half a degree to one degree during the administration of the gas.

3. The amount of gas introduced into the bowel has varied from three quarts to a gallon at each injection. It has been introduced very slowly, from fifteen minutes to half an hour being demanded by the operation. The administration has been practised in most cases twice in the twenty-four hours. No injurious effects from the gas have as yet been observed.

4. Administration of the gas in different amounts and varying degrees of concentration is now being practised, and also investigations into the characteristics of the sputa.

5. In only one of the cases of phthisis the effects of the gas have been entirely negative.

6. In cases of phthisis complicated by intestinal lesions, experience is still insufficient to make it possible to state positive results.

7. The ultimate value of the treatment can certainly only be established by time. The probable mode of action would seem to be antiseptic, and, by reducing suppuration and the relief of the attending serious symptoms, the patient is permitted to gain by food, exercise, and general treatment. Thus far, the value of the gas seems to be that of a useful therapeutic measure, rather than a curative plan of treatment.

8. The method of preparing the gas for use in the hospital is as follows: the carbonic-acid gas is passed through a solution of chloride of sodium and sulphide of sodium in twenty-two ounces of water. The proportion of the salts has been increased in some cases, and some trials of other combinations are being made.

Of the twenty-five cases treated in the early part of the year, Dr. Bruen has been able to follow fourteen of them continuously. Two have since died. In twelve the physical signs remain unchanged, the temperature still above normal, the flesh and strength not increased after the first gain of an average of five pounds. Yet the patients undeniably feel better. The process of suppuration, with its attendant evils, has been modified, suppressed, or controlled, and it must be admitted that the patients have been benefited by the treatment. More recently Dr. Bruen has applied this method in the treatment of twenty-four cases in private practice, and to thirteen additional hospital cases; so that, in all, he presents sixty-two cases in which the treatment has been applied in a systematic manner.

In commenting on the cases which have come under his care, in a paper read before the Association of American Physicians, Dr. Bruen says that two suggestions may be given for the failure of the treatment to give better results. The first applies only to hospital cases. It is impossible, in a large general hospital, to secure the detailed attention to diet necessary to suit the capricious appetite of the consumptive. In treating consumption it is absolutely necessary to increase the vitality of the tissues so that they will be unfavorable culture-media for the bacilli. The second suggestion is, that in cases with inherited tendencies to phthisis, or in those who acquire a phthisical tendency, there is great vulnerability of the mucous membrane, which even fosters an outbreak of catarrhal processes in the bronchial structures. In this way the good effects of the treatment are constantly opposed. He thinks that suitable climatic environment is an all-important adjunct to the proper settlement of the value of Bergeon's treatment. But it is certainly an important addition to the therapeutic equipment to have an agent capable of influencing very markedly bronchial catarrh in so many cases, especially the stay-at-homes. In a word, Bergeon's treatment is chiefly valuable in those cases of pulmonary disease attended with bronchial catarrh; but it is to be feared that the trouble and detail necessary to its successful use will prevent many from employing the method, and the limitation of its power will cause it often to be set aside for other plans of treatment.

It is more desirable, in the treatment of consumption, to adopt those measures which tend to establish the general health, than to hunt up specific forms of treatment. Suitable climatic conditions, judicious alimentation, and appropriate personal hygiene, are the first principles in the therapeutic management of phthisis, and Bergeon's method should be considered an adjunct to these.

HYDROPHOBIA INOCULATION IN NEW YORK. — Dr. Sommer, an Hungarian physician, obtained the consent of the mayor and president of the Board of Health of New York to conduct experiments with the virus of hydrophobia upon the dogs collected by the dog-gatherers and taken to the pound. The Society for the Prevention of Cruelty to Animals have, however, interfered, and require the doctor to obtain the authority of some medical college or university in the State before they will permit him to conduct his investigations. We should think that an application, properly made, to any of the medical institutions of the city, would be followed by the granting of the requisite authority.

USE OF OPIUM. — Dr. Boynton is authority for the statement that Woodstock, Vt., consumes a large quantity of opium. There are four druggists in the town, and they report that their sales of opium in a single year are sufficient to make one hundred gallons of laudanum, equivalent to one hundred and sixty-seven ounces of morphine. Of this, only five per cent is sold to physicians. It can hardly be possible that there is any greater demand for opium in Woodstock than in other towns of the same size, and yet we can hardly believe that this represents the true condition of things in our New England towns. If so, the thought is a startling one, and should receive more than passing notice.

SEASICKNESS. — We have already mentioned a number of remedies for seasickness. Dr. Sutherland suggests another, which he employed successfully in crossing the English Channel, he escaping when almost every one was sick. He takes a tight hold of one of the pillars supporting the deck, and, as the boat rises in going over a wave, he runs uphill, as it were, reversing the direction of his run when the boat descends the wave.

CETTI'S FAST. — It will be remembered that Cetti, a Norwegian, fasted for twelve days in Berlin under the observation of Professor Virchow. In June he began another fast, of thirty days, for scientific purposes. During the fast he was detected eating gelatine jujubes, about a half-pound of which were found on his person.

SCARLET-FEVER. — Dr. Edington of Edinburgh claims to have discovered a bacillus in the blood, and desquamation, of patients suffering with scarlet-fever. The Medico-Chirurgical Society of Edinburgh has appointed a committee to investigate the bacillus and its relations to scarlet-fever.

BOOK-REVIEWS.

Romantic Love and Personal Beauty: their Development, Casual Relations, Historic and National Peculiarities. By HENRY T. FINCK. New York, Macmillan & Co. 8°

IN the current issue of an American weekly this volume is reviewed under the heading of 'A Curious Book.' This epithet it most decidedly merits. Though the first impression of the work is that of its uncommon character, this feeling gradually gives way to an ever-increasing recognition of the intrinsic importance of the argument it sets forth, until in closing its pages one feels that something has been added to his stock of knowledge, a new light has been more or less brightly cast upon many problems, and that these acquisitions will always be associated with Mr. Finck's book.

The fundamental note of the book is the evolution of love, the most conservative element of human nature, that which poets and essayists delight in pronouncing as always and always to be the same, is shown on proper analysis to be subject to that same developmental process which Darwin has associated with his name. Not only have the affections a natural history in the animal world closely affiliated with appearances in early man, but that form of love that to-day is *the* love par excellence — romantic love — is itself only a very modern development, not a thousand years old.

The passion that gives the ground-tone to modern social life, that plays the chief *rôle* in imaginative literature, that attracts the attention of all travellers and observers, that has revolutionized and is modifying many of the problems which to the sociologist are of