

Choletcytitis with Observations on Gall Stone Formation,' by J. H. Pratt.

The Popular Science Monthly for June opens with a timely article on 'Our Forest Reservations,' by J. W. Toumey, in which the subject is discussed from various points of view. David Starr Jordan presents the second instalment of 'The Blood of the Nation,' showing how the slaughter of the flower of the nation in war contributes to the survival of the unfit, and Robert H. Thurston gives the concluding portion of his paper on 'Progress and Tendency of Mechanical Engineering in the Nineteenth Century.' Jas. Lewis Howe discusses 'The Periodic Law,' and Henry A. Rowland's 'A Plea for Pure Science,' is republished as a tribute to his memory, while Gary N. Calkins treats at some length of 'The Malaria Germ and Allied Forms of Sporozoa.' Francis H. Herrick has a well-illustrated article on 'The Wild Bird at Arm's Length; A New Method of Bird Study,' this consisting in removing the branch to which a nest with young birds is attached to some accessible spot near by a green tent, from which the birds are observed and photographed at a short distance. The final article is the sixth portion of 'A Study of British Genius,' by Havelock Ellis, this being devoted to marriage and family.

Bird-Lore for May-June opens with an article by John Burroughs on 'A Bewildered Phoebe,' followed by 'Bird-Nesting with Burroughs,' by Frank M. Chapman, well illustrated from photographs. Annie Trumbull Slosson contributes 'A Sudden Friendship,' showing how tame wild birds may suddenly become. The fourth series of 'Birds and Seasons' treats of the forms to be observed from Boston to Stockton, Cal., incidentally including the statement that Dr. W. L. Ralph is to continue the 'Life Histories of North American Birds' which was begun by the late Major Bendire. Among the various articles in the different 'departments' is one of special interest entitled 'A Connecticut Game Preserve,' by Willard G. Van Name, which hints at a successful method of increasing the birds by making a reservation where they are protected at all seasons and fed during winter and whence they spread into adjacent territory.

SOCIETIES AND ACADEMIES.

THE NEW YORK SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE regular meeting of the New York Section of the American Chemical Society was held May 10th, at the Chemists' Club, 108 West 55th Street, Dr. C. A. Doremus presiding.

The following papers were read :

'The Quantitative Determination of Cadmium,' by E. H. Miller and R. W. Page.

'On the Relation of Chemical Constitution to the Physiological Action of Certain Modern Anæsthetics,' by W. E. Dreyfus.

'Alloys of Titanium and Titanium Steel' by A. J. Rossi.

(a) 'Chemical Nature of the Enzymes,' (b) 'Note on Nucleic Acid,' by P. A. Levene, read by Dr. S. Bookman.

'Analysis of Garden Sage, with Notes on the Determination of Essential Oils,' by L. L. Watters.

Each of the papers received some discussion.

A communication was read from the chairman of the New York Section of Chemical Industry, relative to the appointment by that body of a committee to secure 'uniformity in technical analysis'; and stating that a sub-committee had been appointed to investigate the analysis of Portland Cement. Also that work on this line had commenced and that members of the New York Section of the American Chemical Society were invited to co-operate.

It was moved and seconded that the matters be brought before the council with the recommendation that a committee be appointed to cooperate with the committee of the Society of Chemical Industry.

It was also voted that the chairman of the New York Section be returned as a local delegate to the council of the Society, provided he be not already a member of the council as delegate-at-large.

DURAND WOODMAN,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE MOTION OF A TOP.

THE elementary explanations of this motion generally labor under the difficulty which attended the explanations of the late Professor Pliny Earle Chase, that is, they need an ex-

planation. Such a result might be expected when we consider the difficulties of the question. The student should understand that he must face the difficulties, and that he can not overcome them without serious study. A good analytical exposition will be found in the 'Mécanique' of Poisson. But the most satisfactory investigation of such motions is given by Poincaré, by means of the theory of couples. An interesting example is that of the precession and nutation of the equinoxes. If we form the couples around the earth's axis of rotation, around the line of equinoxes, and around the line in the earth's equator, directed toward the solstice; we find that the couple around the axis of rotation is zero; the couple around the line of equinoxes gives the precession; and the couple around the other axis produces the nutation. By substituting the force arising from the action of the sun, expanding by the binomial theorem, and retaining only the first terms, the solar precession comes out $15''.6$ in a year. The calculation for the moon is not so easy because the moon does not move in the ecliptic; but, since we can compound couples like forces, there is no difficulty except the length of the work. The precession produced by the moon is $34''.8$: hence the sum, or the luni-solar precession is $50''.4$. Observation gives $50''.35$; this simple method therefore gives a good approximation to the true value.

The mass of the earth disappears when we compound the couples, and the precession would be the same if the earth were a shell of the same figure. The precession has a secular character, since when we integrate we find a constant factor multiplied by the time. Again, since the precession is negative, the dynamical result shows that the earth is flattened at the poles, and not elongated as Cassini thought.

The nutation can be found in the same way from the couple around the third axis, but it has a periodical character, and changes sign with the longitude of the moon. The computed value agrees well with observation.

Poincaré's work is a remarkable example of what can be done by the careful study and examination of the geometrical conditions of a question.

A. HALL.

CAMBRIDGE, May 31, 1901.

MODULUS OF CONSTANT CROSS SECTION.

TO THE EDITOR OF SCIENCE: In the last number of SCIENCE there appears a short article with the above heading, in which the author says he can find no mention anywhere of a modulus of constant cross section. The modulus here referred to will be found in a number of treatises on elasticity, among others the article 'Elasticity,' in 'Encyclopædia Britannica,' Vol. VII., p. 807, and Rankine's 'Applied Mechanics,' p. 279, where a numerical value is quoted for brass. If k be the volume modulus and n the rigidity modulus the modulus for constant cross section is $k + \frac{4}{3}n$.

The author may profit by the study of the thermodynamics of elasticity as given in the 'Britannica' article.

THOMAS GRAY.

ROSE POLYTECHNIC INSTITUTE,
May 27, 1901.

NOTE ON THE GENUS *HOLLANDIA* OF KARSCH.

IN reading over the sixth volume of the Cambridge Natural History (Insects) by Dr. David Sharp, p. 396, the writer notes the following statement: "The tropical African Arbelidæ are considered by Karsch to be a distinct family, *Hollandiidae*."

Upon looking up the matter I discover that Dr. F. Karsch, in the twenty-second volume of the 'Entomologische Nachrichten' (1896), p. 137, erected a genus in honor of Dr. W. J. Holland, of Pittsburgh, calling it *Hollandia*, and selecting as the type of the genus the species named and described by him as *Hollandia togoica*. He further made this genus the type of a new family, the *Hollandiidae*, to which he referred the genera *Hollandia* Karsch, *Arbelodes* Karsch, *Lebedodes* Holland, and *Metarbela* Holland.

Dr. Karsch unfortunately overlooked the fact that in the *Annals and Magazine of Natural History* for October, 1892 (p. 295), Dr. Arthur G. Butler had already described a genus of African moths, naming it *Hollandia*, in honor of the same gentleman, whom Dr. Karsch states it to be his wish to recognize. Dr. Karsch's name, therefore, falls into the list of synonyms together with the family name, which he has proposed.

The writer suggests for the genus described