units, as *ids, biophors, micellæ,* and the like, are arraigned as not in accordance with the tendency of modern physical chemistry, which physiology has found so illuminating in its application to the organic processes. Many of the modern ideas of chromosome significance are included in this criticism, which is certainly one that deserves careful consideration. On the other hand such vitalistic doctrines as that of Driesch's entelechy are set forth as equally out of the line of progress. Dr. Jensen is a man of broad reading, of judicial mind, and one that has long been known as an investigator in general physiology. To the reviewer his views seem unusually just and well balanced, so that the paper is one to be highly recommended.

In the latter parts of the work Jensen develops a general theory of development, based largely on various manifestations of the selection principle, working on the materials offered by the physico-chemical universe. In such matters tastes will of course differ; to the reviewer it appears that this, like the critical part of the work, is judicious and valuable.

The present paper is preliminary to an extensive work dealing with general physiology. If the whole is maintained at the high level shown in the preliminary part, its appearance may be looked for with great interest.

H. S. Jennings

SOCIETIES AND ACADEMIES

THE NATIONAL ACADEMY OF SCIENCES

At the meeting of the National Academy of Sciences beginning on April 16, the following papers were presented:

W. T. Swingle and Lyman J. Briggs (introduced by C. Hart Merriam): 'Utilization of Ultra-violet Rays in Microscopy,' and demonstration of the apparatus employed (with lantern illustrations).

Karl F. Kellerman (introduced by Theo. Gill): 'On the Purification of the Isthmian Potable Water Supply' (with lantern illustrations).

J. W. Gidley (introduced by C. D. Walcott): 'A New Horned Rodent from the Miocene of Kansas' (with lantern illustrations).

F. H. Knowlton (introduced by Arnold Hague): 'The Laramie Problem.'

David White (introduced by W. H. Dall): 'Permo-Carboniferous Climatic Changes in South America.'

F. W. True (introduced by W. H. Dall): 'On the Occurrence of European Genera of Fossil Cetacea in America.' (By title.)

J. M. Crafts: 'A New and More Accurate Form of Normal Barometer.'

J. M. Crafts: 'The Catalysis of Sulphonic Acids in Concentrated Solutions.'

F. H. Bigelow (introduced by Cleveland Abbe): 'A Solution of the Vortices in the Atmospheres of the Earth and the Sun' (with lantern illustrations).

L. A. Bauer (introduced by S. Newcomb): 'Results thus far obtained by the Oceanic Magnetic Survey of the Carnegie Institution of Washington, and their Bearing' (with lantern illustrations).

Richard B. Moore (introduced by Arnold Hague): 'The Relation of Radium to Hot Spring and Geyser Action' (with lantern illustrations).

Henry F. Osborn: 'Exploration in the Upper Eocene of the Fayoum Desert' (with lantern illustrations). (By title.)

Lewis Boss: 'Remarks on the Solar Motion' (with lantern illustrations).

Horace L. Wells: 'Biographical Memoir of Samuel L. Penfield.' (By title.)

A. L. Day (introduced by Geo. F. Becker): 'Some New Measurements with the Gas Thermometer.'

Simon Newcomb: 'On the Optical Principles involved in the Interpretation of the Canals of Mars.'

Simon Newcomb: 'Methods of Detecting Correlations between the Variations of Fluctuating Quantities, with an Application to the Question of the Variability of the Sun's Radiation.'

W. W. Campbell: 'The D. D. Mills Expedition to the Southern Hemisphere' (with lantern illustrations).

C. D. Perrine (introduced by W. W. Campbell): 'Results of the Intramercurial Planet Search.'

Alexander Agassiz 'The Eggs of Flying Fishes.' (By title.)

Alexander Agassiz: 'The Elevated Reefs of the Windward Islands.' (By title.)

E. W. Hilgard: 'Biographical Memoir of Joseph Le Conte.' (By title.)

Bailey Willis (introduced by Arnold Hague): 'Continental Structure of Asia.'

Wirt Tassin (introduced by W. H. Dall):

'The Occurrence of Elemental Silicon in a Meteoric Iron.'

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

A SPECIAL meeting of the society was held on March 21, 1907, at the U. S. Bureau of Standards, for the purpose of hearing a paper on 'The Determination of the Temperature of the Sun, and Recent Solar Theories,' read, by special request of the society, by Professor Dr. Otto Lummer, of the University of Breslau. An informal reception followed upon the close of Dr. Lummer's discourse.

The 632d regular meeting of the society was held on March 30, 1907, President Hayford in the chair. The first paper of the meeting was presented by Mr. Elliott Woods (read by Mr. Mark A. Woodell at the author's request) upon 'Recreations in Wireless,' the writer introducing his theme with a brief mention of his early laboratory experiments in electricity and a statement of how his attention and interest were first drawn to wireless telegraphy. Some of the characteristics of wireless telegraphy were then described. Wireless telegraphy speaks by means of vibrations impressed upon that assumed substance, the ether, in which case two capacities are electrically charged to a point where the resistance of the air breaks down and a spark passes between the terminals of the capacities when these are suitably disposed according to the potential of the E.M.F. employed. This spark is the seat of the impressing energy on the ether. The waves thus produced proceed in a circular surface formation. The next step is the receipt of these energy waves. It requires that there be some mechanical device which will absorb the incoming energy of the waves and which in its details must vibrate in unison with these incoming oscillations or waves. It was then stated that messages are received in two ways, either by automatic registration on a tape or by ear, receiving the signals by means of the so-called electrolytic receivers.

Two things appear essential for wireless communication, *i. e.*, harmony in wave vibration between source of power with which we impress the energy and the wave period of vibration of the medium upon which our power is impressed to form the waves, *i. e.*, the closed sending circuit and the aerial. These desirable conditions are found by measurements with a specially designed apparatus known as electric wave meters. A brief description was given of the different parts of a wireless equipment, and the uses of the electric wave meter in measuring the vibratory wave-lengths of the two branches of the system to accomplish harmony of relation. In describing the process of receiving the waves it was stated that as aerials vary in length in nearly every case, so their periods of vibration vary, hence 'tuning' must be resorted to if stations at any distance are to be heard. In the course of the author's remarks concerning some of his experiences in the operation of a wireless station it was stated that daylight signals as received were weaker than night signals, and he was inclined to attribute this to the fact of fewer signals being sent at night. Experience also showed that signals could be heard better on cloudy nights than on clear ones. Instances were cited which seemed to indicate that intervening land areas have an effect upon the receiving of messages. Static wave disturbances were discussed as to their general effect, as revealed by the author's experience. One of the conclusions reached by the author in studying the relations of atmospheric conditions to 'wireless conditions' was that there was no doubt in his mind as to the ability of the wireless receiver, aided by the static conditions which it registers, to show even ahead of the barometer the oncoming of a serious change in the weather, even when the sky doesn't indicate such a change. It was the writer's opinion that the greatest field of labor lies in studying the relations of atmospheric conditions to form of waves sent out under present method of wireless transmission. In the concluding remarks of the paper the commercial benefits of wireless telegraphy were briefly noted.

The last paper of the evening was presented by Mr. Asaph Hall, Jr., under title of 'Discussion of some Errors of Meridian Circles.' The introductory remarks included a description of some meridian circles. The principal

idea of the newest instruments is that of reversal so as to eliminate constant errors. Diagrams were exhibited showing the method of determination and the magnitude of errors of graduation of certain English, French and American observatory circles. The mechanical process of graduating these circles was briefly described. The relative merits of the circles of different sizes used were discussed and it was stated that the tendency is towards smaller circles, one of the advantages of which is possibly that the smaller circles are easier to cast and to graduate than the large ones with which some observatories had been equipped. It was stated, as a general conclusion, that the division errors of the circles mentioned by the speaker, and shown on the diagrams exhibited, are smaller than one would expect them to be.

R. L. Faris,
Secretary

THE AMERICAN CHEMICAL SOCIETY. NEW YORK SECTION

The sixth regular meeting of the session of 1906–'07 was held at the Chemist's Club, 108 West 55th Street, on April 5.

Dr. C. A. Doremus presented a review of the life of M. Berthelot and showed some interesting pictures and memoirs. Dr. C. S. Palmer added a few remarks regarding Berthelot's work and finally the assembly rose out of respect to his memory.

The following papers were presented:

On the Danger of Over-specialization: L. H. Baekeland.

Some New Double Phosphates of Chromium: L. J. Cohen.

1. The addition of a slight excess of diammonium phosphate to a hydrochloric acid solution of ferric chloride precipitates a double phosphate of iron of the formula $NH_4H_2PO_4 \cdot FePO_4$ which is perfectly white, soluble in mineral acids and readily hydrolyzed by water and ammonia; prolonged boiling with hot ammonia dissolves the salt with the formation of a reddish brown solution from which 95 per cent. alcohol precipitates a basic double phosphate. On ignition, the double salt decomposes, giving off ammonia and water.

2. When aluminum chloride is used instead of iron, a corresponding double phosphate forms of the formula $NH_4H_2PO_4 \cdot AlPO_4$ having the same solubilities as the iron salt, except towards alkalies; in the latter it dissolves completely, behaving like aluminum phosphate.

3. With slightly acid solutions of chromium chloride diammonium phosphate precipitates a double salt of the formula $(NH_4)_2HPO_4 \cdot 2CrPO$, possessing a green color and retaining three molecules of water at 98° C.

4. The addition of disodium phosphate to an acetic acid solution of chromium chloride, precipitates a double phosphate of the formula $Na_2HPO_4 \cdot 2CrPO_4$, which retains five molecules of water at 98°, and which is considerably lighter in color than the corresponding ammonium salt.

Reply to Criticisms of Dry Lead Defecation in Raw Sugar Analysis: W. D. Horne.

In clarifying sugar samples for polarization it is customary to add a solution of lead subacetate to remove coloring matter. As the precipitate formed occupies some space within the 100 c.c. to which the solution must be made up before filtering and observing in the polariscope a corresponding concentration of the solution of sugar ensues, causing the polarization to be too high, in proportion to the volume of the precipitate. To obviate this error W. D. Horne proposed that the solution of sugar be made up to the full 100 c.c. before clarifying and then that a powder of anhydrous lead subacetate be carefully added. This has the effect of causing the precipitate formed to lie outside of the 100 c.c., the acetic acid radicle taking up the space within the solution formerly occupied by the organic radicles now combined with the lead. H. and L. Pellet attacked this method, claiming that 1° the lead precipitate absorbed from solution enough sugar to counterbalance the error due to the volume of the precipitate, and 2° the addition of anhydrous lead subacetate dilutes the solution enough to account for the differences of polarization by the ordinary method and by Horne's dry lead defecation.

In this paper Horne shows that the precip-

itate does not absorb sugar, by demonstrating that the ratio of sugar to water is a trifle lower in the unwashed lead precipitate with its adherent sugar solution than it is in the filtrate from the precipitate, while if the adsorption theory were correct a difference of ratio of sugar to water would exist in the other direction and be more than seven times greater than that actually found. The author also shows by analyses of pure sugar solutions to which known quantities of organic matter precipitable by lead were added, that the increase in polarization is strictly in accord with the volume of the precipitate, leaving no room for the claim of absorption.

In regard to the second criticism it is pointed out that analyses of the filtrates after clarification with lead subacetate showed the presence of only very small quantities of lead, which calculated to anhydrous lead subacetate and taking into account the volume which this salt occupies when dissolved, would only have been capable of influencing the results to the extent of 0.044 per cent. and 0.042 per cent. respectively, in two very low test sugars, which are quantities smaller than the allowable analytical error. High test sugars would be influenced even much less.

It is pointed out in conclusion that the critics of the dry defecation method have explained away by their gratuitous assumptions twice as much difference between the old and the new methods as ever can exist, while these later researches of Horne's all go to strengthen the claims he originally made.

C. M. JOYCE,
Secretary

THE AMERICAN CHEMICAL SOCIETY. NORTH-EASTERN SECTION

THE seventy-fifth regular meeting of the section was held at the Trade Club, 77 Summer Street, Boston, on Friday evening, March 29, at eight o'clock, President L. A. Olney in the chair. About ninety members and guests were present.

The section was addressed by President Ira Remsen, of the Johns Hopkins University, who gave some 'Reminiscences of Liebig and Wöhler.' Having been a student under both these great leaders, and knowing one of them (Wöhler) rather intimately, President Remsen was able to throw many side-lights upon the characters of them both. While at Münich as a student in Volhard's laboratory in 1867, he attended Liebig's lectures, and the description of Liebig, his pompous personality, his irritable temper and his overbearing attitude towards his assistants and subordinates, his bent towards sensational experiments and striking situations, was most interesting and amusing. Then followed a résumé of Liebig's investigations, his great work in agricultural and physiological chemistry: the question of possible extraction of the essential food principles of meat, and the resulting production of 'Liebig's extract'; the scientific preparation of bread, and the appearance of 'Liebig's bread' in the market; finally his lively controversy with Pasteur, on the subject of fermentation, was most interestingly told. Liebig's greatest work was done in Giessen, in what Dr. Remsen considers the 'greatest school of chemistry the world has ever known.' At Munich he rested largely on his reputation, became a court favorite, and gave much less attention to chemical work.

Through the good offices of Volhard, the speaker was introduced to Wöhler, and as a result soon became one of the latter's students at Göttingen. Wöhler was most emphatically the opposite of Liebig in every way; a small-statured, quiet man, who was very methodical and painstaking and given to very minute explanations of the various phenomena observed in his experiments. He was also a most kindly man in his relations with his family and subordinates. His lectures were elementary as best suited to the needs of his audience, but his investigations were of a high order. For three semesters, the speaker was Wöhler's assistant and took part in the researches on aluminium, silicon, boron, etc., and came to know him very well. Wöhler had but little interest in the theories of Kékulé, who was then exciting a great influence in organic chemistry. Wöhler's home life was ideal and his friendship for Berzelius very strong. Liebig and Wöhler exerted a great influence upon

chemistry during the second and third quarters of the last century.

Following President Remsen's address, short accounts were given of the following honorary members of the society, whose deaths have been recently announced: Mendelejeff, by Professor H. P. Talbot; Roozeboom, by Professor A. A. Noyes; Berthelot, by Professor J. F. Norris; Moissan, by President Remsen.

A vote of thanks was tendered to President Remsen and the other speakers, for the very interesting addresses and the section adjourned at 10:25 P.M. As usual, a light lunch was served immediately after adjournment.

Frank H. Thorp,
Secretary

DISCUSSION AND CORRESPONDENCE

THE MISLEADING AND THE NON-INFORMING TITLE

To the Editor of Science: There is a matter to which frequent reference has doubtless been made in print, but to which I now recall attention.

I allude to (1) 'the misleading title' and (2) 'the non-informing title.'

1. I need give no particular instance. Entomological magazines are full of 'Entomological Notes in Spain,' 'A Trip to Switzerland,' etc., referring actually to Lepidoptera only; or 'Coleoptera from Moray,' to which a list of the Hemiptera captured is added as a foot-note. These are a great nuisance to the specialist.

2. I take as an example, the *Proc. Linn. Soc.: New South Wales* (2), VI., part 3 (1892), not because the publication is alone in its misdemeanor, but because I have just been referring to it.

There are four papers in the 'list of contents' which convey no idea of even to what class they refer, unless one indeed chances to have heard of the forms previously.

(*a*) 'On the synonymy of *Helix* (*Hadra*) *gulosa* Gould.' On the second page (322), 'Conchology' and 'Mollusca' are mentioned.

(*b*) 'Observations on the Chloræmidæ,' etc. Who, but a student of the worms, knows what a chloræmid is? We find no help till the middle of the first page, when it is mentioned as a chætopod and it is quite likely that some specialists do not know what a chætopod is. It is, however, termed an annelid on the fourth page.

(*c*) 'Descriptions of two new species of *Carenum* from West Australia.' I do not think there is anything in the six pages of this paper to inform us to what class *Carenum* belongs, unless by inspection of the horismology used. I presume, from certain words employed, and from the fact that Mr. Sloane is the author, that it is a carabid beetle.

(*d*) 'Description of a new *Diplomorpha*.'

'Shell,' 'Conchology,' etc., are used, informing us that the genus is molluscan.

The above remarks are made on the supposition that the 'Proceedings' are in front of us; but what is the unlucky wight to do who only sees a list of the contents as an advertisement in some other journal?

The instances cited and the countless other similar ones are a disgrace to the authors and editors concerned. The simple method adopted by, *e. g.*, the Entomological Society of France in their *Bulletin*, is now urged. An abbreviation of the order, or orders, concerned is placed in square brackets after the title, thus 'Note sur *Corœbus fasciatus* Vill. = *bifasciatus* Ol. [Col.] et ses parasites [Hym.]'; so that we know at once that this paper deals with Coleoptera and Hymenoptera. This is sufficient for entomological publications; for those of wider scope, the addition of the class would be useful, thus '[Ins. Col.]' or '[Crust. Dec.].'

There are already troubles more than sufficient, in the path of the present-day worker who strives to keep himself informed of the literature of his chosen subject, in the shape of multifariousness of publications and of languages, false dates of publication, false pagination of separata, and so forth, without his being compelled to resort to Scudder and Waterhouse, often only to find that the generic name desired has been employed three or four times, perhaps in different phyla.

G. W. Kirkaldy

THE DISPUTED ERUPTIONS OF VESUVIUS

To the Editor of Science: It occurs to me that two important bibliographical references