

by J. C. Merriam; 'Interaction of Hydrochloric Acid and Potassium Permanganate in the Presence of Ferric Chloride,' by J. Brown; 'Crystal Drawing,' by S. L. Penfield; '*Ane-miopsis Californica* (Nutt.) H. ea A.: An Anatomical Study,' by T. Holm.

THE December number of the *Journal of Nervous and Mental Diseases* opens with an article by Dr. J. Grinker on a case of juvenile tabes in a family of neuro-syphilitics, including careful investigations of the family history, and supplemented by a report of a rather unusual case of precocious tabes without evidence of syphilitic infection, with an exceptionally long course and with fragilitas ossium. Dr. Max Schlapp and Dr. J. J. Walsh unite in presenting a case of subcortical cyst and fibroma due to trauma producing Jacksonian epilepsy, cured by operation; and the original articles for the month close with a short paper by Dr. James Burnett on the therapeutic action of veronal. The proceedings of the Boston Society of Psychiatry and Neurology, May 19, 1904, are reported, and also the proceedings of the New York Neurological Society, May 4, 1904. The 'Periscope' gives abstracts of the *Journal of Mental Science*, *Nouvelle Iconographie de la Salpêtrière*, *Journal de Neurologie*, and *Archives de Neurologie*. Books reviewed are: 'Unconscious Therapeutics,' by Dr. Alfred Schofield; 'Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Neurologie und Psychiatrie,' by E. Flatau, E. Mendel and L. Jacobson, and 'Lehrbuch der speziellen Psychiatrie für Studierende und Aerzte,' by Dr. Alexander Pilez.

The *Popular Science Monthly* for January contains the following articles: 'Some Experiments of Luther Burbank,' by David Starr Jordan, giving some of the results of his labors in producing new plants; 'The Present Problems of Paleontology,' by Henry Fairfield Osborn; 'Social and Political Effects of Immigration,' by Allan McLaughlin; 'Galileo,' by Edward S. Holden; 'Radio-activity and Matter,' by the late Clemens Winkler; 'Educational Problems,' by the Lord Bishop of

Hereford; some interesting facts about 'The United States Pharmacopœia,' by H. C. Wood; and 'The Mosquito Investigation in New Jersey,' by John B. Smith, which shows the very important results secured during the last three years. There are very interesting brief articles in 'The Progress of Science.'

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES. ANNUAL MEETING, DECEMBER 19, 1904.

THE academy convened for the annual meeting at 7:30 P.M., on December 19, at the Hotel Endicott. The president, Professor Edmund B. Wilson, occupied the chair. A formal session for the transaction of the regular business of the academy was first held, and this was followed by a dinner at which sixty-six members and their friends were present.

The accompanying reports of the corresponding secretary, recording secretary, treasurer, librarian and editor were read and placed on file. The report of the treasurer was formally referred to the finance committee for audit.

The academy then proceeded to the election of officers for the year 1905; Professors Hovey and Lloyd were appointed tellers, ballots prepared by the council according to the provisions of the by-laws were distributed, and the votes were counted. The following officers were declared elected:

President—James F. Kemp.

Vice-Presidents—Edmund O. Hovey (Section of Geology and Mineralogy), Ernest R. von Nardroff (Section of Astronomy, Physics and Chemistry), W. M. Wheeler (Section of Biology), F. J. E. Woodbridge (Section of Anthropology and Psychology).

Corresponding Secretary—Richard E. Dodge.

Recording Secretary—Hermon C. Bumpus.

Treasurer—Charles F. Cox.

Librarian—Ralph W. Tower.

Editor—Charles Lane Poor.

Councilors (to serve three years)—Emerson McMillin and F. H. Wiggin.

Finance Committee—John H. Hinton, C. A. Post, H. F. Osborn.

The following eminent men of science were elected honorary members, being presented to

the academy for election by fellows engaged in scientific work similar to their own:

Hugo de Vries, professor of plant anatomy and physiology in the University of Amsterdam, The Netherlands. Presented by Professor Britton.

G. Johnstone Stoney, M.A., D.Sc., F.R.S., professor of natural philosophy in the late Queen's University, Dublin, Ireland. Presented by Professor R. E. Dodge.

W. C. Brögger, director of the mineralogical institute, Christiania, Norway. Presented by Professor Kemp.

Karl von der Steinen, professor of ethnology in the University of Berlin. Presented by Professor Boas.

Ferdinand Zirkel, professor of mining and geognosy in the University of Leipzig. Presented by Professor Stevenson.

Dr. Frederic A. Lucas was elected a fellow of the academy, being presented by the recording secretary.

Professor J. McKen Cattell then proposed the health of Professor R. S. Woodward, a past-president of the academy, recently elected to the presidency of the Carnegie Institution.

The president of the academy, Professor Edmund B. Wilson, then delivered his address upon 'The Problem of Development,' at the close of which a vote of thanks was tendered to him.

The academy then adjourned.

HENRY E. CRAMPTON,
Recording Secretary.

Report of the Recording Secretary.

During the year 1904 the academy met in business session on eight occasions, and the several sections held thirty meetings, at which seventy-six stated papers and lectures were presented upon the following subjects:

	Papers.	Lectures.
Astronomy	2	1
Physics	11	
Chemistry	1	
Botany	5	
Paleontology	2	
Zoology	10	
Geology	6	
Mineralogy	2	
Physiography	2	2
Anthropology and Archeology..	8	
Psychology	16	
Philosophy	6	1
Biography	1	

Particular mention must be made of the lecture upon the 'Physiography of the Alps' by Professor Albrecht Penck, an honorary member of the academy.

At present there are 278 active members, of whom 132 are fellows; the election of one fellow is pending. During the year two members have died, six have resigned, while six have been dropped on account of non-payment of dues. As five new members have been elected during the same period, there has been a net loss of nine.

In accordance with a recommendation offered by the library committee a more permanent union of the libraries of the academy and the American Museum of Natural History has been effected, to their mutual advantage. In regard to publications, it may be stated that the former method, according to which papers presented before the academy could be published in journals other than the *Annals* with the financial support of the academy has been set aside. In the future, as in earlier years, a volume of the *Annals*, to consist of three or four parts, will be issued during a calendar year.

Particular attention is now being given by the council to the matter of membership, and efforts are to be directed in the near future towards increasing the list of active members. As stated above, there has been a loss of nine during the year, although the members that resigned exceed the new members by one only. Maintenance, however, is not progressive development unless in the face of adverse conditions. The situation that confronts us is in some respects a difficult one, though not peculiar to the academy. The special societies, each dealing with some restricted branch of science, will tend more and more in the future, as they have in the past, to draw away active workers from general bodies such as the academy. Support for the academy may, therefore, be sought with a fairer prospect of success from those upon whom demands are not made by professional duties, that their activities shall be centered in the special organizations for scientific work. With such support, publication as one of our two main objects may be furthered. Efforts should

none the less be made to draw into the academy the younger men in active work, who must carry forward the activities of a scientific nature in the future, thus subserving the second purpose of the society.

One other subject of general interest must be mentioned. The council has decided that the routine work connected with the several offices of the academy shall be performed by a clerical assistant, with an office at the American Museum of Natural History, who shall be under the general supervision of the recording secretary. This arrangement provides for a still further centralization of the activities of the academy in the museum, where the library is already housed, and where the scientific meetings are now being held.

HENRY E. CRAMPTON,
Recording Secretary.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

THE ninth regular meeting of the Society for Experimental Biology and Medicine was held in Professor C. A. Herter's laboratory, at 819 Madison Avenue, New York, on Wednesday evening, December 21, 1904. Dr. S. J. Meltzer presided.

Members present.—Atkinson, Auer, Burton-Opitz, Dunham, Ewing, Flexner, Gies, Herter, Jackson, Lee, Levene, Levin, Lusk, Mandel, Meltzer, Murlin, Park, Richards, Salant, Wadsworth, Wallace, Wolf.

Members elected.—John Auer, F. G. Benedict, Ludwig Hektoen, G. C. Huber, H. S. Jennings, Jacques Loeb, Leo Loeb, A. B. MacCallum, J. H. Pratt, Torald Sollmann, J. C. Torrey.

*Scientific Program.**

Radium, and some methods for its therapeutic application, with demonstrations:
HUGO LIEBER. [By invitation.]

Mr. Lieber gave an interesting account of the discovery of radium by Mme. and Pro-

fessor Curie, and demonstrated many radioactive phenomena. Special attention was drawn to recently discovered facts bearing on radium emanation, which show that radium discharges primarily *emanations* and *alpha rays* only, but that the emanations soon disintegrate, with the resultant production of *beta* and *gamma* rays. Because of their nearly negative penetrative power, the alpha rays as well as the emanations are practically unavailable for therapeutic purposes when the radium is used in glass tubes or in similar containers.

Various observers have noted beneficial therapeutic effects of radium, especially on diseased tissues, as in cancer. Germicidal results have also been obtained. On the other hand numerous therapeutic failures have been recorded. The author believes that in all probability many of these disappointments have ensued solely because the practitioner has not had available, in such cases, just those radiations of radium which are required for therapeutic effects.

This opinion of past therapeutic failures led the author to conduct some experiments designed to discover a method of applying radium more advantageously. Such a method seemed to require (a) a disposition of the radium in *very thin layers*, so as to yield the maximum proportions of alpha rays and emanations, and (b) its application in a container *permeable by the rays and the emanations*. These experiments finally led to the production of what the author terms '*radium coatings*.'

The preparation of the coatings may be illustrated by their application to celluloid rods. The radium salt is dissolved in a solvent such as alcohol. The rod is then dipped into this solution. On its withdrawal, the radium solution adherent to the rod quickly evaporates, when the radium is deposited in a very thin layer. The celluloid is somewhat softened temporarily by the alcohol, a fact favoring superficial incorporation of the radium. Accidental removal of the radium may be effectually prevented by dipping the radium-coated rod into a proper colloid solution, quickly withdrawing it, and

* The abstracts presented in this account of the proceedings have been greatly condensed from abstracts given to the secretary by the authors themselves. The latter abstracts of the reports may be found in current issues of *American Medicine* and *Medical News*.

allowing the collodion to deposit in a thin film by evaporation. An anilin dye, when added to the radium and collodion solutions, shows the exact situation and extent of the coating.

The thin collodion covering is permeable to both the alpha rays and the emanations. Such coatings produce beautiful scintillations, on zinc sulfid screens. Very small areas, such as the tips of delicate rods, coated in the manner described, compare very favorably in discharging the electroscope, with 1 gram preparations of radium bromid of 10,000 activity in glass tubes, or with 10 milligram preparations of radium bromid of 1,000,000 activity in thin aluminium tubes. When air is blown over the radium coatings the air carrying the emanations discharges the electroscope. These facts were demonstrated by the author.

The radium coatings make it possible to apply radium directly to practically every part of the body. The radium thus applied would be practically equivalent in radioactive effects to the same amount of uncovered radium in a layer of equal thinness. Any instrument can be conveniently coated with radium at a desired place by the method indicated.

The author demonstrated a tubular apparatus, containing an inner radium coating and designed to convey radium radiations into the lungs, for experiments on the destruction of the tubercle bacillus. The same apparatus would be useful in other connections for direct treatment of diseased tissues. It was also shown that the radium coatings are not destroyed by sterilization. The activity of a strip of celluloid with a radium coating was undiminished after vigorous boiling.

The availability of the radium coatings for many kinds of biological investigation is so obvious that nothing need be said here regarding it.

Some of the physical phenomena of muscle fatigue, with demonstration of tracings.
FREDERIC S. LEE.

The investigation of the subject has been continued by the employment of a method by which the isotonic curves of all the contractions of an excised non-curarized muscle stimulated

at regular intervals, are superimposed upon a recording surface. The differences which were previously pointed out in the mode of fatigue of the muscles of the frog, the turtle and a mammal, have been confirmed. Lohmann's work, in which a frog's gastrocnemius on being heated to a mammalian temperature shows a course of fatigue similar to that of mammalian muscle, has been repeated and found in general correct. But the turtle's coracoradialis profundus, similarly heated, continues to give its characteristic curve of fatigue.

Kaiser's method for determining the point on the isotonic curve where the contractile stress terminates, has been employed for the frog's gastrocnemius, and it has been found that as the height of the curve diminishes in the course of fatigue, the contractile stress terminates at progressively lower and lower points. The lowering of the latter does not, however, seem to keep pace with the lowering of the summit of the curve. Hence the two points seem to approach one another.

A new form of float for water or alcohol manometers, with demonstration: HAVEN
EMERSON. [By invitation.]

The float consists of an aluminium cylinder with very thin wall, supporting a writing arm of fine aluminium wire. For manometer tubing of nine thirty-seconds inch inside diameter, three sixteenths or one fourth inch light aluminium tubing about two and one half inches long is used. In the upper end is forced a solid cap of aluminium, with a small hole in the center into which the wire for the writing lever is driven. The lower end is plugged with cork. A coating of paraffin prevents leaking. The value of the float consists in its cheapness, ease of construction, slight inertia and delicacy.

Gelatin as a substitute for proteid in the food.
J. R. MURLIN.

In a series of experiments on dogs, the nitrogen requirement of the body was determined by fasting periods. Varying amounts of gelatin containing from one fourth to two thirds of the required nitrogen were fed, the remainder of the nitrogen being supplied in

meat proteid. The calorific requirement was estimated from Rubner's tables and was fully covered in each experiment with fats and carbohydrates. Results show an equal sparing of the body proteid with one fourth, one third and one half gelatin nitrogen, the coincident sparing of fats and carbohydrates being the same. When the coincident sparing of proteid by non-nitrogenous food is increased by feeding a larger percentage of carbohydrates and less fat, two thirds of the nitrogen requirement may be given in gelatin and perfect nitrogenous equilibrium maintained at the starvation level. The same result was obtained on man.

The reductions in the body in fever, with demonstrations: C. A. HERTER.

Dr. Herter demonstrated that elevation of the body temperature greatly accelerates the rate of reduction in the tissues. This was shown by means of an intravital infusion of methylene blue in a rabbit whose body temperature had been raised to 42° C. by the external application of heat. Simultaneously with this infusion another injection was made in a rabbit, of approximately equal weight, in which the temperature was maintained at about 39° C. Otherwise conditions in the two animals were practically the same. At the close of the infusions, the organs of the rabbit of normal temperature showed more color than those of the one in which the temperature had been elevated. The differences in the nervous system and the muscles were particularly striking.

The measurement of the reducing processes of cells in vitro, with demonstrations: C. A. HERTER.

An apparatus was demonstrated which had been devised for the purpose of measuring the reducing processes of the different kinds of cells *in vitro*. Definite quantities of organ pulp were placed in specially constructed tubes and anaerobic conditions were established by the passage of nitrous oxid gas. Definite quantities of methylene blue of known strength were then added. The rate of reduction was indicated by the disappearance of the blue color owing to the reduction of the animal

cells. It was shown that *in vitro* the influence of temperature is the same as that observed in the living organism. The influence of alkali in accelerating reduction was also shown. The action of salts and various poisons is at present the subject of investigation.

Some medical applications of the naphthoquinon sodium mono-sulfonate reactions, with demonstrations: C. A. HERTER.

Dr. Herter demonstrated the reactions of this compound with anilin, various amins, nicotin, conin, piperidin, indol, skatol and pyrrol. Colored condensation products resulted. The reactions with indol, skatol and pyrrol possess unusual physiological and chemical interest and will form the subjects of future publications. The reaction with pyrrol, which is highly characteristic and should prove of special service to chemists, occurs in the cold and is evidenced by the deepening red which, on the addition of alkali, changes to purple, violet, blue and finally reddish brown. The addition of acid to the red solution obtained without alkali is followed by the development of a green and finally a brown color.

Among the biological and medical applications of these reactions, Dr. Herter mentioned the study of various aromatic compounds in the organism, the occurrence of certain intravital syntheses, the detection in the urine of organic compounds such as para amido phenol, and the development of a method of staining the bile capillaries by means of intravenous infusion of the derivatives of the naphthoquinon compound. Dr. Herter also stated that these substances facilitate the study of the relation between the chemical constitution and distribution of poisons in the body.

On the rate of absorption from intramuscular tissue, with demonstrations: S. J. MELTZER and JOHN AUER.

The authors tested a previous observation that absorption from the muscles is very much more rapid and efficient than from the subcutaneous tissue. Adrenalin, curare, morphin and fluorescein were used in the tests.

In the case of adrenalin, for example, it

was found that when quantities of about 0.5 c.c. per kilo or even less were injected *intramuscularly* they at once caused (1) marked increase of blood pressure, (2) dilation of the pupil on the side from which the superior ganglion had been removed and (3) general prostration. When the same quantities of adrenalin were injected *subcutaneously* however, they were almost invariably without appreciable effect in any of these connections, or, when similar phenomena were produced, they were much less marked and their onset was greatly delayed.

Similar differences in absorption velocity and efficiency were shown in the cases of curare, morphin and fluorescein.

WILLIAM J. GIES,
Secretary.

NORTH CAROLINA SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE regular fall meeting of the section was held on December 3, 11 A.M., in the office of the state chemist, Raleigh, N. C., with presiding officer, A. S. Wheeler, in the chair.

Preceding the presentation of papers a short business meeting was held and the following officers were elected for the ensuing year:

President—C. B. Williams, Raleigh, N. C.

Vice-president—J. E. Mills, Chapel Hill, N. C.

Secretary-treasurer—C. D. Harris, Raleigh, N. C.

Councilor—A. S. Wheeler, Chapel Hill, N. C.

Reporters—Chas. Walker, West Raleigh, N. C., and E. V. Howell, Chapel Hill, N. C.

The following papers were presented and discussed:

Some Problems in the Cellulose Field (presidential address). A. S. WHEELER, University of North Carolina, Chapel Hill, N. C. (Will be published by the section.)

The Action of Metals on Various Aqueous Solutions. G. MCP. SMITH, A. & M. College, Raleigh, N. C.

Molecular Attraction. J. E. MILLS, University of North Carolina, Chapel Hill, N. C.

The article was a summary of work already published (*Journal of Physical Chemistry*, June, 1904) and of work along the same line

yet to be published. An equation was deduced based upon the idea that the so-called cohesive forces between the molecules of a liquid could be entirely and quantitatively accounted for on the supposition of an attractive force between the molecules, the force varying inversely as the square of the distance apart of the molecules. The deduced equation was tested by an examination of twenty-five liquids over wide ranges of temperature and pressure. The measurements used, were, for the most part, those made by Drs. Ramsay and Young and Dr. Young. The result undoubtedly allows the conclusion to be drawn that the intramolecular forces obey a law exactly similar to the law of gravitation, *i. e.*, the attraction between the molecules of any liquid varies inversely as the square of the distance apart of the molecules, does not vary with the temperature and is a function of the number of molecules (mass) considered.

The results also point to the conclusion that the so-called molecular association, as in the case of water, is caused by this same molecular attraction and not by another force such as chemical affinity.

On Crompton's Equation for the Heat of Vaporization. J. E. MILLS, University of North Carolina, Chapel Hill, N. C.

An equation proposed by Mr. Crompton (*Proc. Chem. Soc.*, Vol. 17, 1901),

$$L = 2RT \log_e d/D$$

(L is heat of vaporization, R is the constant of the gas equation, $PV = RT$, T is the absolute temperature, d and D are the densities of liquid and vapor respectively) was examined. It was shown that the latent heats so calculated were invariably and usually very considerably too high at low temperatures where the vapor pressure is small, but at high pressures as the critical temperature of the liquid is approached the results are in excellent agreement with the true heats of vaporization. Some important results following from this equation were pointed out. The article is to be published in the *Jour. Phys. Chem.*, December, 1904.

Some Notes on the Determination of Crude Fiber. J. M. PICKEL, Department of Agriculture, Raleigh, N. C.

A Method for the Extraction of Salicylic and Benzoic Acids and Saccharine in Food Products. W. M. ALLEN, Department of Agriculture, Raleigh, N. C.

On Biot's Formula for Vapor Pressure. J. E. MILLS, University of North Carolina, Chapel Hill, N. C.

It was shown that Biot's formula for the vapor pressure of a liquid,

$$\log P = A + b\theta^4 + c\theta^6,$$

does not exactly represent the true vapor pressure of a liquid in the immediate neighborhood of the critical temperature. The article is not suitable for abstraction and will shortly be published in full.

Note on the Law of Dulong and Petit. J. E. MILLS. University of North Carolina, Chapel Hill, N. C.

Collected data for the specific heats of the metals were exhibited in the form of curves. The results show that the law of Dulong and Petit in its present form has but slight basis in fact.

On the Chemical Combination of Hydrogen and Oxygen when Subjected to the Action of Radium Radiations. CHARLES W. EDWARDS, Trinity College, Durham, N. C.

I desire to announce to the North Carolina Section of the American Chemical Society the discovery of the synthetic action of radium radiations in its chemical effects. Numerous effects have been observed and published wherein compounds have been decomposed into elements or transformed into simpler compounds. For instance, radium bromide dissolved in water produces H and O, it produces ozone in the air, and helium is produced by the radium emanation.

Certain investigations of a negative result carried out last year in England concerning the effect of ionization by ultra-violet light on gaseous mixtures led me to attempt the same problem, using radium as the ionizing agent. This I was able to do, thanks to the kindness of Dr. Bergen Davis and Dr. G. B.

Pegram, of Columbia University, and of the department of physics in various ways, especially in the loan of five milligrams of pure radium bromide worth at present about \$350.

The amount of chemical combination was measured by the change in volume of the gas exposed to the radiations. The saturation current was measured by the electrometer method and the following data are based on those measurements. I am now taking the current by a ballistic method and measuring volumes more accurately, so will soon have more accurate results. I will reserve the details for a later paper, but will state now a few results.

The quantity of gas converted to water was 18×10^7 c.c. per second. In one cubic centimeter there are 4×10^{19} molecules, hence the number of molecules of gas that disappeared was

$$n = 4 \times 10^{19} \times 18 \times 10^{-7} = 7.2 \times 10^9 \text{ per sec.}$$

three molecules of the mixed gases. If M = number of molecules of water formed per second

$$M = \frac{2}{3} \times 7.2 \times 10^9 = 4.8 \times 10^9.$$

If N = number of physical ions produced, then in this case $N = 7.32 \times 10^9$.

Hence

$$\frac{M}{N} = \frac{4.8 \times 10^9}{7.32 \times 10^9} = 6.500.$$

From this it appears that 6,500 molecules of water were formed for each ion produced by the radium radiations—a result far in excess of expectations or theoretical predictions.

After the program the visiting chemists were the guests of the resident chemists at a table d'hôte dinner at Giersch's café.

C. D. HARRIS,
Secretary.

SCIENCE CLUB OF THE UNIVERSITY OF MISSISSIPPI.

THE first meeting of the Science Club of the University of Mississippi for the current session was held September 30, Professor J. W. Johnson presenting a paper on 'The Teaching of Physics.'

At the October meeting Professor R. W.

Jones led in a discussion of the subject, 'The Training of Chemists,' reviewing a recent paper by Sir William Ramsay.

Dr. P. W. Rowland followed with a statement of his views on the treatment of the opium habit. According to his theory something is manufactured in the fluids of the body of an opium eater which acts as an antitoxin—something positive is developed which counteracts or antagonizes the morphine. These opposing forces approximate a condition of equilibrium, thus enabling the victim to take ever-increasing doses. This partial equilibrium is lost when the morphine is withheld. It was considered possible to produce an antitoxin, and it was suggested that the club undertake an investigation to this end. Dr. Rowland thought that some lower animal, say the horse, could be rendered immune to poisonous doses of opium or morphia by repeated injections of the substance, and that the serum thus obtained would probably contain the antitoxin in the case of the habitu  of morphine or opium.

The next meeting of the club was held December 2. Dr. J. B. Bullitt, the leader for the evening, after some introductory remarks on immunity to drug influences, addressed himself more particularly to the closely allied subject 'Immunity from Disease.' Attention was called to the fact that the lower animals are immune to certain diseases to which the human race is subject, and *vice versa*. It was also noted that some divisions of the race enjoy immunity where others show peculiar susceptibility. Natural and artificial immunity were discussed. The history of the various theories of immunity, with a brief statement of each, was given, and special emphasis was laid on the 'side-chain' theory.

ALFRED HUME,
Secretary.

DISCUSSION AND CORRESPONDENCE.

AN EXAMPLE IN NOMENCLATURE.

MR. DAVID WHITE has published in the 'Smithsonian Miscellaneous Collections' (Quarterly Issue), Vol. XLVII., Pt. III., pp.

322-331, pl. xlvii, xlviii, a paper on 'The Seeds of Aneimites.' He shows that he has specimens of the foliage of that genus with seeds attached, also an abundance of detached seeds. He names the species bearing these seeds *Aneimites fertilis* n. sp. But he says that he discovered the seeds before he could be certain that they belonged to *Aneimites*, and had contemplated giving them the name *Wardia*, that he had even gone so far as to give them that name in a manuscript in preparation, but that he had postponed publication 'in the hope that further study * * * would yield * * * evidence bearing either on the internal organization of the fruits or on the structure of the fronds.' Such evidence he subsequently found and established to his satisfaction that the 'fruits' belong to the genus *Aneimites*, a supposed fossil fern, thus adding one more to the rapidly growing list of Paleozoic seed plants.

On page 323, where the species is described, he calls it "*Aneimites (Wardia) fertilis* n. sp., but in other places *Aneimites fertilis*. He, however, constantly refers to the seeds as *Wardia*, and in at least one place (p. 329) he calls them *Wardia fertilis*. He does not pretend that they belong to a different genus from *Aneimites fertilis*, and, indeed, proves that they are the same, and the specific name is the same for both combinations. What he has done is to take a name from an unpublished manuscript of his own and publish it for the first time as an exact synonym of the name that he gives to the species. The name *Wardia fertilis* is, therefore, stillborn, or at least strangled at its birth, and has no validity whatever.

Now why should he thus cumber an overburdened literature with another worthless synonym? Such a proceeding in the present state of science is a recognized crime. As Mr. Bather said in discussing a similar case some time ago, what does the scientific world care for his private excogitations over material too imperfect for publication?

But the name *Wardia* was preoccupied anyhow, for that name was given by Harvey and Hooker in 1836 to a genus of