not explain; they simply enable us to take points of view fertile for discovery of new properties. Thus atomism is to be preferred to energetics, the latter, though nearer to fact and less liable to dangerous hypotheses, does not stimulate the mind to discovery. Better danger than the precision of sterility! (p. 229).

Biology (Book V., 'The Place of Biology among the Sciences') the author would regard as underlying zoology, botany, physiology, etc., even as theoretical mechanics underlies physics. As theoretical mechanics defines the motion of bodies, biology defines life, leaving to the detailed sciences the description of different forms of life. Life itself is defined as a localized process, like the flame, not a specific substance or energy, but a locus of points where certain reactions are accomplished. The characteristic property of life is assimilation (p. 288). Thought and other psychoses are described as a special sensorial canton 'le canton intime.'

The general position of the author, that sense-impressions are all we know, and that the sources of heat, light, sound, etc., are not *in themselves* describable in visual terms, is an extreme one and is open to all the objections which are being urged, rightly or wrongly, against 'humanism.' But further, it is quite dogmatic to say that quantity does not apply beyond the visual field, or that mathematics is the language of vision; what is needed is a more exhaustive account of the conceptions involved. It is also to be regretted that M. Le Dantec, as a biologist, has not made use of the discoveries of Mendel, De Vries and others, which inevitably suggest that the fundamental law of science is not mere determinism, as he says (p. 213), but chance (in the mathematical sense) as well. Nevertheless, the attempt of M. Le Dantec to give clear and concise definition of the principal scientific conceptions should be welcomed by scientists and philosophers alike, and should lead to further work in the same direction.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

SOCIETIES AND ACADEMIES.

THE NEW YORK SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE section held its fifth regular meeting of the season at the Chemists' Club, Friday evening, February 10.

The president of the American Chemical Society, Dr. Francis P. Venable, presented to Professor Charles Lathrop Parsons, of the New Hampshire College, Durham, N. H., the Nichols medal, which was awarded to him for his paper entitled 'A Revision of the Atomic Weight of Beryllium,' read before the section in May, 1904. Mr. W. H. Nichols, the donor of the medal, was also present and made a few appropriate remarks.

The regular program of the evening was then taken up and the following papers presented:

The Accumulation and Utilization of Atmospheric Nitrogen in the Soil: E. B. VOORHEES and J. G. LIPMAN.

The experiments planned included, first, a study of the question of the sources of nitrogen to leguminous plants on soils to which no nitrogen had been applied, and to which nitrogen in various forms and amounts had been applied; second, the availability of cow pea nitrogen, as compared with the different forms of nitrogen for the growth of non-legumes; and third, the possibility of the accumulation of nitrogen in cultivated but uncropped soils.

The soils used were light in character, poor in nitrogen and supplied with an abundance of the mineral elements.

Briefly, the results show that the cow pea crop accumulated large quantities of nitrogen, and that the greatest accumulation was where no nitrogenous materials had been applied. Or, in other words, that the addition of the nitrogen decreased rather than increased the content of soil nitrogen, indicating that the leguminous crop will accumulate proportionately larger quantities of nitrogen upon soils relatively free from this element.

Millet was then grown two seasons, both upon the soils upon which the cow pea had grown, and upon which no crops had been

grown, and without further application of nitrogen.

The final analyses of the crops and soils showed that the organic nitrogen contained in the cow peas, and accumulated largely from the air, was utilized by the succeeding non-leguminous crop, and that there was a gain of nitrogen in the soils where no cow peas were grown, and that such gains were greatest where the largest amount of manure had been applied.

The Detection of Methyl Alcohol: Heyward Scudder.

The formation of methyl salicylate is not a reliable test, because ethyl salicylate has almost the same odor. The Riche and Bardy test takes too long to be of practical value. The Trillat test (delicacy 0.2 per cent.) is uncertain. The deepening of the blue on heating is characteristic. Wolf and Robine state that Trillat's test is not reliable and give modifications that may be of value in cases of doubt. The Haigh (delicacy 5 per cent.) and Spanglé-Ferrière (delicacy 1 per cent.) tests use phloroglucine to show the presence of formaldehyde. The color obtained varies with the concentration of the formaldehyde. A blank test with ethyl alcohol must always be made. The effect of heat is characteristic. By using proper conditions a rapid test (delicacy 2 per cent.) can be made. The Mulliken, Scudder test (delicacy 3 per cent.) is very reliable because of the formation of flocks as well as color. On account of the uncertainty of color tests for small amounts, it is advised first to try a rapid test and, if no definite result is obtained to concentrate by fractionation.

The Origin of Radium: Bertram B. Boltwood.

It had been shown in previous papers that the determination of the relative quantities of uranium and radium in a number of minerals strongly indicates a constant ratio between the quantities of these elements occurring together. In the present paper improved methods for the quantitative determination of both radium and uranium are described, and the results obtained from an examination of twenty-two separate samples, comprising twelve distinct mineral species, are given. These results show a constant proportionality between the quantities of radium and uranium in all of the samples examined, and lead to the inevitable conclusion that uranium is the parent of radium.

F. H. Pough,
Secretary.

Discussion and Correspondence.

The Naturalist's Universal Directory.

A new edition of the 'Naturalist's Directory' has recently come to hand. In casually turning the leaves I noticed that the names of Joseph Le Conte and J. W. Powell were still retained in the list of American naturalists, although their deaths had occurred as long ago as 1901 and 1902. These lapses suggested that the directory might not be trustworthy in other respects, and at my suggestion an associate compared its lists with various other lists of scientific men, for the purpose of testing its accuracy and fullness. The practical utility of Cassino's directory in the past seems to be attested by the fact that it has reached its nineteenth edition, and I therefore feel justified in presenting, as a matter of general information, some of the results of the examination.

In order to judge of its fullness a comparison was made with the contemporary lists of a few scientific organizations whose membership is carefully selected on the basis of scientific ability or accomplishment. Of 90 members of the National Academy of Sciences the directory fails to include 28. It omits 129 of the 329 members of the Washington Academy of Sciences, 57 of the 233 members of the American Society of Naturalists, 11 of the 46 fellows of the American Ornithologists Union, and 54 of the 259 fellows of the Geological Society of America. Probably some members of each organization are not within the scope of the directory, but this remark can not apply to such men as Outram Bangs, C. F. Batchelder, Lyman Belding, Franz Boas, Lewis Boss, A. P. Chadbourne, C. F. Chandler, S. C. Chandler, W. W. Cooke, G. A. Dorsey, Wm. Dutcher, H. G. Dyar, H. W. Fairbanks, W. G. Farlow, J. W. Fewkes, Henry Gannett, A. C. Gill, L.