The Section on Social and Economic Sciences (K): A session is being arranged to include the address of the retiring vice-president. The Biometrics Section of the American Statistical Association will hold sessions Monday through Thursday, including joint sessions with the American Society for Horticultural Science, the Genetics Society of America, the Econometric Society and the Section on Historical and Philological Sciences.

The Section on Historical and Philological Sciences (L): One of the features of the program of Section L will be a symposium on "Trends in Scientific Research." This session will be held on Wednesday afternoon. Three other sessions are planned.

The Section on Engineering (M): Sessions on Tuesday and Wednesday. The retiring vice-president, Dr. Thorndike Saville, will deliver his address at a luncheon at the Cleveland Engineering Society.

The Section on Medical Sciences (N): The Section is planning sessions for Monday, Tuesday and Wednesday. The Sub-section on Dentistry will hold a symposium on "Dental Caries and Fluorine" on Monday.

The Section on Agriculture (O): On Thursday morning Section O will join with Section G for a symposium on "Nutrition—Some Current Views." Papers will be read by Dr. R. E. Buchanan, Dr. R. J. Garber and Dr. A. E. Murneek. The American Society for Horticultural Science will meet on Tuesday, Wednesday and Thursday.

The Section on Education (Q): Section Q and Section I will meet jointly on Tuesday evening. The section also will hold a joint session with the Ecological Society of America for a symposium on the teaching of ecology.

The National Association of Science Writers is proposing a symposium on the role of the daily newspaper on the development of science in the United States.

On Tuesday and Wednesday, the Research Council on Problems of Alcohol will hold a symposium on alcoholism. The council will conduct part of its program in collaboration with the Cleveland Committee on Alcoholics, the chairman of which is Judge Lewis Drucker.

SOCIETIES AND ACADEMIES

THE ANNUAL MEETING OF THE ROYAL SOCIETY OF CANADA

THE 1944 meeting of the Royal Society of Canada was held at the University of Montreal from May 29 to 31. New fellows were presented at the first general meeting. Those elected to the scientific sections were as follows:

Section III (Chemical, mathematical and physical sciences): R. C. Dearle, G. S. Field, John T. Henderson, G. deB. Robinson, W. Ure.

Section IV (Geological sciences): J. W. Ambrose, G. V. Douglas, H. B. Yates.

Section V (Biological sciences): J. A. Anderson, W. V. Cone, G. E. Hall, W. F. Hanna, Georges Maheux, D. S. Rawson.

Lieutenant General A. G. L. McNaughton, who had been elected an honorary fellow in 1941, while he was absent from the Dominion as Commander in Chief of Canada's Army Overseas, was presented at this meeting.

The society's medals were presented at the evening meeting on May 29, as follows: The Flavelle Medal to Professor Velyien E. Henderson, of the University of Toronto, in recognition of contributions to knowledge in the fields of pharmacology, physiology and therapeutics, including the discovery of the anesthetic properties of cyclopropane; the Henry Marshall Tory Medal to Professor Frank Allen, of the University of Manitoba, for his contributions to the subjects of optics and acoustics and especially to a border region of physics and physiology; the Tyrrell Medal to Professor Harold A. Innis, of the University of Toronto.

Following the presentation of the medals, the president of the society, Mgr. Olivier Marault, rector of the University of Montreal, delivered his presidential address "Montréal—une synthése." The popular lecture on "War, Peace and Commerce" was given on the evening of May 30 by Dr. B. K. Sandwell.

In Section III, the presidential address was delivered by Professor Thorvaldson, who spoke on "The Solid State," reviewing the various theories of chemical reactions in the solid state and the experimental evidence in support of them. This was followed by a symposium on the same subject, in which Professor M. A. Peacock described the methods of identification of solid phases by crystallographic means and Professor E. F. Burton showed some recent photographs taken with the Toronto electron microscope of the forms of solid particles of ultra-microscopic dimensions. The final paper of this symposium was on rubber by Dr. G. S. Whitby, who described the chemical constitution and related physical properties of several of the new artificial rubbers now being produced.

Among the thirty-two other papers presented to the section, mention may be made of one by Professor Frank Allen, in which results of experiments on the sensitivity of the color sensations were described. He finds that when the right eye, for example, is adapted to red light, the red sensation is reduced, but in the left eye all three sensations (red, green and violet) are enhanced. If the eye is rested after adaptation for three minutes, a reversal in sensitivity occurs. There is thus an oscillation of sensitivity. A paper on further simplification in thermodynamical calculations along lines previously developed was read by Profes-

sor A. N. Shaw. Dr. J. A. Pearce and E. C. Walker reported the orbital elements of Lambda Andromedae based on a series of measurements made on high dispersion spectrograms taken at Victoria. Dr. E. C. Beals discussed results which indicate that some new molecular absorption lines recently discovered show characteristics closely similar to atomic lines. It is suggested that their probable origin is to be found in the solid particles responsible for general absorption in interstellar space and that laboratory investigations of the absorption spectra of such particles as are likely to be present in interstellar space might be fruitful in their identification. A new mechanical height computer for radiosonde observations was described and shown by Dr. W. E. Knowles Middleton.

In Section IV, Dr. W. A. Bell's presidential address dealt with the use of some floras in Canadian stratigraphy. Fossil floras have proved very useful in subdividing the very thick Carboniferous sediments of the Maritime Provinces into six groups, of which three are Mississippian and three Pennsylvanian. The use of the terms Mississippian and Pennsylvanian is more appropriate as regards major floral and tectonic events of the Acadian province than Lower and Upper Carboniferous. The former terms are not synonymous with the latter, for the Mississippian terminated in an early part of Upper Carboniferous time, as in the Mississippian valley region. The group subdivision, established mainly on floral evidence, is apparently the most natural one, for it is corroborated by tectonic events. Coal formation was not confined to one age as formerly assumed, but took place locally in the Pennsylvanian in each of the three ages represented by the groups of strata.

In Western Canada stratigraphic work of Dr. F. H. McLearn made possible the recognition of a sequence of three fossil floras in the Lower Cretaceous, respectively of Barremian (and? Neocomian), Aptian and Albion ages. Coals were deposited in Barremian time in southern Alberta and the Yukon, in Aptian time in northern Alberta and central British Columbia.

Nineteen other papers on geological and mineralogical researches were presented. Dr. Madeleine Fritz, of the Royal Ontario Museum of Paleontology, reported the recent discovery of the bryozoan species *Trachytoechus moniliformis* Fritz, n. sp., in the Gaspé sandstone of Lemieux Township, Gaspé County, in the interior of the Gaspé peninsula. This has provided evidence to substantiate the belief that the rocks in which the specimen was found are of Middle Devonian age. Dr. F. J. Alcock, of the Geological Survey, Ottawa, presented evidence based on the findings of several striated surfaces and many erraties in central Gaspé which support his already published conclusions that the Labrador ice sheet crossed the Shickshock Mountains.

Dr. H. S. Jackson, of the University of Toronto, president of Section V, spoke on "Life Cycles and Phylogeny in the Higher Fungi." The discussion centered in a comparison of life cycles in the rusts with those in the red algae. It was shown that not only do the normal cycles correspond very closely but that the same sort of simplified cycles occur in both groups. A life cycle comparable to that of the ascomycetes also occurs among the simplified red algae.

Professor Velyien Henderson, the Flavelle Medal winner, presented an invitation paper entitled "Studies in Anesthesia with the Cyclopropane Group." Professor A. T. Cameron, of the University of Manitoba, outlined the results of his researches on the relative sweetness of certain sugars and mixtures of sugar. If a solution contains known concentrations of two or more sugars, a means has been found for calculating the sweetness of this mixture in terms of that of a specific concentration of sucrose or of glucose. It has been demonstrated that the sweetness of 25 per cent. sucrose is not more than (and is probably less than) 3.3 times that of 5 per cent. sucrose.

Forty-three other papers on various phases of biological and medical sciences made up the program of Section V.

Officers elected for the coming year were: *President,* Professor J. K. Robertson, Queens University, Kingston; *Vice-president,* Professor E. S. Moore, University of Toronto; *President of Section III,* Dr. J. A. Pearce, Dominion Astrophysical Laboratory, Victoria, B. C.; *President of Section IV,* Dr. J. S. DeLury, University of Manitoba; *President of Section V,* Dr. Robert Newton, president of the University of Alberta.

J. R. DYMOND

SPECIAL ARTICLES

EXTRINSIC FACTOR IN PERNICIOUS ANEMIA: INEFFECTIVENESS OF PURIFIED CASEIN AND OF IDENTIFIED COMPONENTS OF THE VITAMIN B COMPLEX[1,2]

WHEN beef muscle together with normal human gastric juice is administered daily to suitable patients with Addisonian pernicious anemia, a hematopoietic response appears within 10 days.[3] Like beef muscle, several sources of the vitamin B complex, such as milk,[4] eggs,[5,6] liver,[7] yeast,[8] rice polishings and wheat germ,[9] contain the so-called extrinsic factor for the

[1] From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School, Boston, Mass.