effect of conduction, which probably played a considerable part in the Marconi system. In Lodge's method the antennæ are not earthed, and the result is that much better resonance is obtained. Prof. MacDonald did not think his results would account for Transatlantic transmission, and pointed out that Lodge's method differed also in the use of shorter wave-lengths and antennæ with a much less distance above the surface. In a paper by Dr. T. H. Havelock, on the instantaneous propagation of a disturbance in a dispersive medium, an attempt was made to remove an apparent anomaly in the results obtained by Lord Rayleigh in a recent paper in the *Philosophical Magazine*. A paper followed by C. W. Chamberlain, on the relative motion of the earth and æther and the FitzGerald-Lorentz effect. Analysis shows that the total effect of the relative motion is a displacement of the interfering rays in the line of sight, and one at right angles to it. In the interferometer the former should be detected (in the absence of shrinkage); the latter should not. The author suggested an arrangement, called a diffractometer, which he considered should detect the transverse change. Interference is to be produced between two rays travelling at right angles to one another, and the effect will be analysed by a diffraction grating. A change in the length of the path of one of the interfering systems will produce interference bands either in the spectra to the right or to the left. A shift of a whole band is expected for the length of path used in the Morley-Miller experiments and a grating of 30,000 lines to the inch if the apparatus is rotated through ninety degrees. The failure of many experimentalists to find any effect depending upon the earth's motion through the æther has served so much to strengthen the belief of those who hold that it is undetectable that the meeting seemed inclined to receive the proposal with reserve. Prof. Hull pointed out what he considered a flaw in the reasoning. We must therefore await the results of the actual performance of the experiment or a thorough examination of the calculations upon which the belief in its suitability is based. In a somewhat technical paper Prof. E. W. Brown outlined some new methods under trial for tables of the moon's motion. Lieut.-Colonel J. W. Gifford followed with a description of a new cemented triple devised by him for spectroscopic use, the peculiarity being the possession of a ratio of 7·5 of focal length to effective aperture and great freedom from tertiary colour-aberration. Dr. H. G. Dorsey, in an interesting paper on magneto-striction, said that he finds from experiments on eight steel rods of known composition that the maximum elongation due to magnetisation is a function of the carbon content, the curve being similar to a curve in the iron-carbon phase diagram; there is also a relation between it and the maximum susceptibility of a specimen. The maximum retraction bears an inverse relation to Young's modulus. The results tend to straighten out the somewhat chaotic data obtained by other observers. One more paper now remained on the programme, but the inexorable clock pointed out that the time had arrived for the compulsory closing of the sessions. So the final rites were performed, and then an interested group informally examined some remarkable vibration curves of speech exhibited by Prof. D. C. Miller.

CHEMISTRY AT THE BRITISH ASSOCIATION.

BEARING in mind the special local conditions attaching to a meeting of the association out of England, the work of the section was organised so as to include the consideration of broad problems of general and local interest rather than the reading of specialised papers. Accordingly, the section sat jointly with the physicists for one session, with the physiologists and agriculturists for another, and with the botanists and agriculturists for a third. These joint discussions were all exceedingly successful and attracted large audiences.

It was regretted that a larger number of the younger English chemists did not make the journey to Canada, and still more that so few of the chemists from eastern Canada were present, though the section was particularly indebted to Mr. F. T. Shutt, of Ottawa, for his contributions to the discussions. The section was strengthened by the presence of a number of American guests, in particular Prof. W. A. Noyes, Prof. G. B. Frankforter, and Dr. A. Springer.

Stress was laid throughout the meeting on the importance and necessity of Winnipeg and the province of Manitoba possessing a university fully up-to-date in every respect. In particular, attention should be devoted in Winnipeg to agricultural chemical research and to the higher training of agriculturists. Wheat must always be a pioneer crop, as it requires less capital, less labour, and less skill than most other types of farming. With fuller development or with some change in the world's requirements a change will come in the farming, and wheat may become a by-product, as often in England now. Such a change comes very quickly, and the farmer will go under unless he is prepared for it and has the highest scientific advice.

In the United States the farmer has realised very definitely the benefits he has obtained by following the results of the experimental stations; in consequence he supports the State universities, and has the greatest belief in the schools. On the western excursion there was abundant opportunity of remarking that the Canadian is equally far-sighted in regard to the schools, but it is none the less necessary to urge that the university work, and above all university research, be not neglected.

Following the president's address, which was delivered at such an hour that members of the section could also attend the addresses delivered by the presidents of Sections A and G, the work of the section was opened by a short paper from Prof. W. A. Noyes dealing with his recent work in connection with camphor. A very full report on combustion, by Prof. W. A. Bone, was taken as read. Prof. E. H. Archibald outlined the method followed by him in a new determination of the atomic weight of iridium. Potassium chloroiridate was analysed by weighing the dry salt, reducing it in hydrogen, and estimating the hydrochloric acid formed, the potassium chloride and the metallic iridium set free. The results show a value of 192·9 for the atomic weight. His further paper, contributed jointly with Mr. W. A. Patrick, dealt with the electrical conductivity of solutions of iodine and platinum tetraiodide in ethyl alcohol. The conductivity of solutions of iodine in ethyl alcohol increases rapidly with time, reaching a maximum in about twenty-five hours at 25°. Platinum tetraiodide forms good conducting solutions with alcohol.

A paper of very considerable interest, on the anti-putrescent effects of copper salts, in particular towards the bacteria of milk, was contributed by Dr. Alfred Springer. Copper salts are selective in their action, greatly retarding or inhibiting the putrefactive bacteria such as *Proteus vulgaris, P. mirabilis, P. Zenkeri,* and *Clostridium foetidum*, but having little effect on the lactic bacteria. Consequently, milk treated with copper salts retains its sweet odour even when the acidity becomes sufficiently high to curd it. On the other hand, moulds such as *Penicillium glaucum, Aspergillus niger, Eurotium repens*, and others, grow more freely on milk containing copper salts, probably because they are left a freer field for development. The origin of small traces of copper in the milk supplied by a Cincinnati firm was traced to contamination of the sterilising cloths, pails and other utensils with the boiler compound used to soften the water. Copper salts have an anti-putrescent effect on blood albumen, egg albumen, meat, milk and sewage solutions.

The report of the committee for the study of hydro-aromatic substances (secretary, Prof. A. W. Crossley, F.R.S.) describes the preparation of nitro-derivatives of *o*-xylene and the synthesis of *iso*phorone.

The transformation of aromatic nitroamines committee (secretary, Prof. K. J. P. Orton) summarises the results obtained by the study of the transformation of chloro-aminobenzene into nitroaniline.

The report of the isomorphous benzene sulphonic acid derivatives committee (secretary, Prof. H. E. Armstrong, F.R.S.) contains the crystallographic data of a number of *para*-dihalogen derivatives of benzene; these afford confirmation of Barlow and Pope's conclusion as to the existence of columns of carbon spheres in crystalline benzene

derivatives, and support the confirmation previously obtained by Jerusalem by the study of the picrates and styphnates.

The electro-analysis committee (secretary, Dr. F. M. Perkin) reported on experiments upon a new design of potentiometer, on the general simplification of the apparatus, on a method for the electro-deposition of metals by means of graded potential, and in connection with the electro-deposition of mercury upon gold, silver, platinum and mercury kathodes.

A joint meeting with the general physics department of Section A took place on Friday, August 27. A large attendance was attracted, and the communications were discussed by members of both sections. Only the more purely chemical papers are noted in the following. Dr. T. M. Lowry presented the report of the committee on dynamic isomerism in the form of a general discussion on dynamic isomerism in relation to luminous phenomena. Attention was in the first place directed to the decisive evidence adduced that the presence or absence of a band in the absorption spectra of a camphor derivative is in no way dependent on the occurrence or non-occurrence of isomeric change. Certain luminous phenomena, *e.g.* mutarotation and phosphorescence, have been shown to be manifest only in presence of a catalyst, and not when pure materials are used; they are therefore dependent on chemical change. Refraction, dispersion, and optical rotatory power do not appear to be dependent on the presence of foreign substances, and are to be referred to physical characteristics of the molecule. Colour, fluorescence, and triboluminescence are still subjects of controversy. The last two are probably dependent on chemical structure, but it is difficult to resist the conclusion that colour is an essentially physical phenomenon in which chemical change plays no essential part. The conclusion is one which is confirmed by the study of crystallisation in relation to phenomena.

This paper provoked considerable discussion. Sir J. Larmor remarked that phosphorescence is due, not to the formation of ions, but to complex molecules forming and breaking up, and instanced that iodine vapour, which is strongly phosphorescent, shows no conductivity, and therefore contains no ions.

In three further notes Dr. Lowry put on record some useful improvements in the technique of optical investigations. Measurements of rotatory dispersion have been made with light of twenty-six different wave-lengths, and the green mercury line Hg 5461 has been selected as the principal standard in place of the sodium doublet on account of its brilliance and purity.

The optical and magnetic dispersions produced by quartz are identical, but optically active liquids have the optical dispersion usually, though not always, higher than the magnetic dispersion. It is suggested that the magnetic rotatory power of liquids depends upon a spiral packing of the molecules of the same general character as that which produces the optical rotatory power of quartz.

To produce a cadmium spectrum of sufficient intensity for polarimetric work, use is made of the silver cadmium alloys; these have high melting points, and give a steady arc which can be kept true to centre by rotating the electrodes in opposite directions. The silver and cadmium lines are so far separated that no overlapping takes place even when the spectroscope slit is opened to its full width. Mercury and cadmium lines are suggested as standards in refractometry.

Two papers by Dr. C. J. J. Fox were taken as read. The constancy of the hydrogen-gas electrode in sulphuric and hydrochloric acids has been investigated when gold or platinum coated with either platinum or palladium black are employed; in a very few minutes values concordant to less than 0·05 of a millivolt were obtained. Palladium coated with palladium black gave a value 4 to 5 millivolts too high. A new method of preparing trustworthy mercurous sulphate for standard cells is described; this consists in heating commercially pure mercurous sulphate for a day or so at 120°–150° in a sealed tube with a little mercury and dilute sulphuric acid. The sulphate is thus obtained free from nitrate and basic sulphate.

The joint discussion with the botanists and agriculturists on wheat and flour had been carefully organised previous to the meeting, so that the contributions might be made in logical sequence and present as full a picture as possible of the exact position of our present knowledge of wheat and flour from every point of view. The present problems are quite clear; the chemist has to map out the wheat soils and to watch the quality of the product; the botanist has to breed wheats that suit local requirements and command a good price in the market.

The subject was particularly appropriate for discussion at Winnipeg, and the discussion, which throughout was very technical in character, was closely followed by an expert audience. The first paper, by Dr. Stapf, on the history of the wheats, dealt with their classification and characteristics. The great economic importance of the wheats proper lies in the fact that the looseness of the grain in the husk enables threshing to be quickly and cheaply accomplished. Dr. E. J. Russell followed with a paper by A. D. Hall and himself on the factors determining the yield of wheat, based on the experiences at the Rothamsted Station since 1851. The chief elements of nutrition derived from the soil or manure are nitrogen, phosphoric acid, and potash; other elements also play their part, but are supplied in sufficient quantity by all ordinary soils. The yield of grain is proportional to the nitrogen supplied, but two sets of factors may be traced in the results. At first the root system of the plant increases with the supply of nitrogen, and the yield is more than proportional to the supply; subsequently other limiting factors come into play, and the increase is smaller for the third and fourth increments of nitrogen.

Wheat does not require large quantities of phosphoric acid; the effects of this manure are secondary, and dependent upon season. A deficiency of potash is shown by a reduced yield, especially in dry seasons, and by increased tendency to disease, rust, &c.

Wheat is one of the crops best adapted to dry regions. High temperatures are not necessary excepting at the time of maturation. The type of soil in relation to climate is a very important factor. To each type there is a limiting yield, beyond which the crop will not go. This limit is not the same for all varieties of wheat.

Mr. F. T. Shutt, chemist to the Dominion Experimental Station, Ottawa, followed with an account of the influence of environment on the composition of wheat. The factors which might be supposed to influence composition are heredity, environment and soil. Soil, however, has very little effect on the composition, as distinct from the yield, of wheat. The shorter the period which elapses from the formation of the kernel until it is ripe the higher the nitrogen content. High temperatures, long days, and absence of excessive moisture during the ripening process hasten the maturation of the grain and increase the percentage of gluten. These are the conditions which prevail in the Canadian North-west.

Experiments were described in which the same wheat was grown on old land and recently cleared land, the older land being the drier and yielding wheat with a higher percentage of protein. It is suggested that the quality of the wheat as measured by the quantity of gluten it contains is dependent on the amount of soil moisture during development and ripening of the grain. The quality of the gluten, however, is considered to be controlled by heredity.

The subject was next developed from the point of view of the miller, a paper by Mr. A. E. Humphries being read by the recorder of the section. This dealt with the vexed question of quality in wheaten flour. Good quality is the sum of excellence on several points, and is technically denoted by the term "strength." Strength is defined as the capacity for making large, shapely, and therefore well aërated loaves. This is a very complex conception, and it is now admitted that at least five separate considerations are included in the term quality; these are (1) flavour; (2) colour; (3) stability of dough; (4) size and shape of loaf; (5) yield of bread per sack of flour. A pleasant flavour is an essential, but the exact flavour desired is chiefly influenced by fashion. Colour in bread is largely a question of optics, a strong flour making a whiter loaf than a weaker flour. A large loaf indicates a high gas-making capacity and a high diastatic power,

but this is not a true index of strength. It is the gas evolved in the later stages of panary fermentation which is of importance, and the gas-retaining power of the dough which is the most important factor in strength. This is apparently a function of the quality of the gluten, and dependent on the proportions of various acids and salts which affect the physical properties of the gluten.

Dr. E. F. Armstrong followed with some notes on the chemical properties of flour and an account of the recent work on strength. Flour is composed of (1) starch; (2) several kinds of proteins; (3) mineral matters present only in small quantity; (4) a little sugar; (5) a little fat; (6) moisture; (7) enzymes. It has been the object of the chemist to seek to correlate the chemical properties with baking qualities. Most attention has always been paid to the gluten of flour; generally the strongest flours have the most gluten, but this test is not absolute. Attention has further been directed to measuring the quality of the gluten either by physical or chemical means, such as the amount of water it will retain or the proportion of gliadin in it. The total nitrogen of a flour is another rough indication of quality; latterly the distribution of nitrogen in its various forms has also been studied. To make a light loaf the flour must be one which will give rise to sufficient gas during fermentation; it must contain enough diastatic enzyme or have its starch in a form which is easily attacked. Whymper has found that the largest starch grains are those first attacked by enzymes, and it appears that different flours contain different proportions of large starch grains. The mineral matters and enzymes of flour are likewise of the very greatest importance in affecting quality.

Mr. W. B. Hardy, who followed, dealt with the influence of the minerals of flour on its quality. Gluten owes its tenacity and elasticity to the presence of salts and acids in certain proportions, pure gluten having no tenacity.

Prof. R. Harcourt, of Guelph, directed attention to the comparative milling and baking qualities of a number of Canadian wheats. Though the Manitoba spring wheats do not contain more gluten than the Alberta winter red wheats, they give a better yield of bread and a larger loaf. Blends of Alberta red with soft Ontario winter wheats give a flour superior to either of the constituent flours baked singly. This confirms the common practice of English millers. The discussion then turned to the breeding of wheats. Dr. C. Saunders gave a most valuable account of wheat-breeding experiments in Canada, and a highly suggestive paper on the influence of good seed on wheat production was read by Prof. C. A. Zavitz. A paper by Prof. L. S. Klink dealt with individuality in plants. A general discussion of great interest followed, and it was subsequently agreed by the general committee that the discussion be printed in full in the report of the meeting.

Tuesday, August 31, was devoted to a joint meeting with the representatives of physiology and agricultural chemistry to consider the subject of "food." The views developed were of the very greatest importance, more especially as indicating the lines on which future work in this field should proceed. After some introductory remarks by the chairman, a paper on "Proteins: the relation between composition and food value," was read by Dr. E. Frankland Armstrong. The quotient of the amount of nitrogen in a food material multiplied by the factor $6\frac{1}{3}$ is commonly spoken of as protein without any reference to its nature, although it has long been realised that proteins of different origin are not the same. The proteins have been proved in the main to be built up of amino-acids, belonging both to the aliphatic and aromatic series, or derived from cycloids containing nitrogen, of oxyamino-acids, and of diamino-acids. In different proteins these structural units are present in varying proportions, and, since the amino-acids are very different from one another in their chemical structure, it must be supposed that they each fulfil somewhat different functions in building up the tissues of the body. It thus becomes important to see that each is supplied in the proper proportions required by the body. Further, the analytical results point to the impossibility of entirely replacing a diet composed of one kind of protein—for example, meat—by another diet composed, let us say, of nuts, since the two proteins, though made up of the same structural units, contain these in entirely different proportions.

It remains to solve such problems as the precise function and significance of each amino-acid in metabolism, how far they may replace one another or be absent altogether without injurious effects; further, to what extent each is concerned in the maintenance of a particular tissue. Probably the presence of most, if not all, of them is necessary in a food if health is to be maintained. Tryptophane, for example, has been shown to be essential by Willcock and Hopkins. The ideal diet should contain as much variety of protein as possible in order to provide sufficient of all the possible units of constructive metabolism.

Prof. Starling, F.R.S., suggested that it was possible to attach too much importance to protein as a mere source of nitrogen. In reality, four-fifths of the protein of food is not connected with the nitrogen question. Proteins may decompose in two ways; in the one nitrogen is immediately eliminated, and a residue produced which contains as much energy as the fats or carbohydrates, and furnishes this energy on oxidation. Only a small amount of the protein is built up into the body. A protein diet is never stored as fat, neither is the above-mentioned carbonaceous residue stored as fat. A protein meal is followed by a large output of carbon dioxide and intake of oxygen, the residue being more easily oxidised than the original protein. The value of proteins as a food is due to this, and it is important that the fate of the residue in the body should be investigated.

Proteins also undergo decomposition in another manner, namely, the carboxyl group is eliminated and amines are formed. These amines have a marked physiological action; for example, those from tyrosine and phenylalanine have an action like that of adrenalin. A big meat-eater usually has a high blood pressure, whilst the constant formation of such amines causes the various disorders of middle age.

Dr. E. J. Russell, of the Rothamsted Experiment Station, next dealt with the problems of the stock feeder, who asks for methods by which he can determine the relative food value of various agricultural products. Experience has shown that animals fed on barley meal or cotton cake singly do not do so well as those fed on a mixed diet of both ingredients. A single food is not enough, but it is not known what the ideal mixture should be. Swedes grown on chalk loam have not the same feeding value as those grown on sand. There is a similar difference in the value of grasses grown under substantially the same conditions. Fibre is of very little value as a food—it acts merely to distend the stomach. The mineral constituents are of great importance, and may account for some of the facts recorded. Pigs fed on maize give a low-grade bacon; a diet of maize and minerals gives a better bacon; and the best article is obtained by feeding with barley meal. The food has an effect on the character of the beef and on the production of milk. Cotton cake, for instance, causes the production of milk, whereas with linseed cake the cows lay on flesh instead of producing milk. Prof. Cushny, F.R.S., alluded to the influence of taste and the importance of the mineral constituents.

Mr. F. T. Shutt described some experiments on pig-feeding. The Canadian pork was originally found to be too soft for the packers owing to the quality of the fat. This was got over by the addition of skim milk, which, together with corn, was found to afford an ideal diet. An increase in the proportion of corn softens the fat; too much actually kills the pigs. The fat of the animal and of the cereal is stated to be the same.

Dr. F. N. Alcock alluded to the changes in the habits of the women of the upper middle classes during the last fifty years. Their diet to-day contains less protein and less malted liquors, and this is probably to be associated with the fact that they no longer have large families or are able to nurse their offspring. Infants commonly get too little protein, which necessitates that they receive only a minimum quantity of some—probably essential—residue.

Prof. J. Wilson indicated in historical sequence the views which had in turn prevailed on the feeding of stock. In early days the cattle practically starved during the winter on a large amount of straw, and had no energy left in the spring. A great improvement was experienced

about the middle of the eighteenth century, when turnips were added to the diet, and the introduction of oil cake about 1797 made it possible to fatten during the winter. It is found that a linseed-cake feed gives the results most desired by the butcher, a cotton-cake feed giving a poorer bullock. The oil was long considered to be the valuable constituent; later, most importance was attached to the albumenoids. Maize was introduced in 1875, brewers' grains a few years later, and the carbohydrates are now regarded as a most important constituent.

In the subsequent discussion the minimal protein was defined as that sufficient to supply the units for tissue formation. Dr. E. F. Armstrong alluded to the importance of the mineral constituents in a colloidal state and their analogy to enzymes. Prof. Starling pointed out that the physiologists diet for health, whereas the agriculturists feed for fattening purposes.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

THE meeting of Section H at Winnipeg, apart from being one of the most enjoyable of recent years, was also fruitful of much good work, and was undoubtedly in every respect a great success. It was hardly to be expected that the audiences would be as large as at an English meeting, but although the numbers attending the section were at first few, they increased daily, and at the end were well up to the average. Last year a great diminution in the number of papers dealing with physical anthropology had to be recorded. Unfortunately, this was still more apparent at Winnipeg, and only one paper on the subject was presented. It is to be hoped that this is only a temporary falling off, and that in future years the papers on physical subjects will be as numerous as in the past.

The address of the president, Prof. J. L. Myres, on "The Influence of Anthropology on the Course of Political Science," need only be mentioned here, as it has already appeared in the pages of NATURE. The last few paragraphs of it, however, in which the president urged the importance and necessity of undertaking an ethnographic survey of Canada, must have particular attention directed to them, as, in a way, they struck the keynote of the meeting.

When the association met at Montreal in 1884 Prof. Tylor presided over the newly formed anthropological section, and the chief result of the meeting was the foundation of an ethnographic survey of Canada, under the auspices of the association, which appointed a committee and gave liberal grants. This committee did much good work and published annual reports, but the lamented death of Dr. George Dawson brought work to a standstill. Since then, with the notable exception of Mr. Hill-Tout's work on the Salish of British Columbia, practically nothing has been done by Canadians towards a systematic study of the natives inhabiting the Dominion. It was felt, therefore, that the time was ripe for endeavouring to organise an ethnographic survey, and a whole day was accordingly set apart for papers and discussion on this important subject.

This discussion was opened by Mr. Sidney Hartland, who gave a *résumé* of the work that had been done in the past from the times of the Jesuit fathers onwards. This retrospect made it apparent how small had been the part taken by Canadians in contributing to our knowledge of the natives of the Dominion, and how little interest had been taken by the Dominion and provincial Governments, which had been content to leave inquiries, which have a bearing, not only on scientific questions, but also on the practical problems of government, to the Government and museums of the United States, and to individual effort.

Mr. Hartland was followed by Dr. Franz Boas, of New York, who, in a paper on the ethnological problems of Canada, urged the immediate importance of undertaking such a survey at once, before it is too late. Primitive life is rapidly disappearing before the economic progress of Canada, and unless the work is undertaken at once the opportunity will be gone for ever, and information which will have a most important bearing upon general anthropological problems will never be obtained. Dr. Boas then directed attention to some of the problems awaiting solution, and pointed out what an important field Canada offered to the investigator.

Dr. G. B. Gordon, of the Philadelphia Museum, explained the work which is being undertaken by the Smithsonian Institution and the various museums in the United States.

But the native question, although the most pressing, is not the only ethnographic problem in Canada which requires study. The problem of the white immigrants is in many respects even more important, and a strong feature was therefore made of this side of the question. Dr. Shrubsall, who opened the discussion on this aspect of the problem, pointed out the great importance of collecting careful statistics so as to be able to ascertain the effect of Canadian environment upon immigrants of European origin. He urged the vital importance of a survey of physical characters, mental conditions, and physique, so as to discover what type was best suited to the Canadian environment, and he also pointed out how necessary it was that the Dominion should take preventative measures now to stop the landing of the physically or mentally unfit, rather than remedial measures later. The task before the Dominion was to prevent these problems, which are now facing the great centres of population, from arising in Canada rather than to let them arise and then to attempt to remedy them.

As a result of this discussion a committee was appointed by the association to consider what steps can be taken to organise an ethnographic survey of Canada, and a memorial has also been drafted urging upon the Government the importance of undertaking the work before it is too late. It is hoped that this memorial will be presented in due course.

As was natural at a meeting in Canada, many papers dealing with American, and particularly Canadian, ethnology and archæology were presented to the section.

To take first of all those dealing with Canadian ethnology. Mr. Hill-Tout, whose reports on the various British Columbian tribes have appeared from time to time in the Journal of the Royal Anthropological Institute, presented a further instalment of his work in a report on the ethnology of the Okanagan of British Columbia. These people are the most easterly division of the Salish of the province, but they are not confined to British Columbia, but extend southwards into the United States, the international boundary dividing them into two fairly equal divisions. The material culture and language of the stock was discussed, and from the linguistic and cultural evidence a most important conclusion was arrived at, namely, that the original home of the stock, before its division into its present sections, was not the rivers and bays of the Pacific coast. The staple food of these people is now, and as long as they lived where they do now must have been, the salmon. If, therefore, they had inhabited their present districts before their language was divided into its present groupings, we would expect to find the same word for salmon among the different stocks; but this is not the case, and, in addition, their myths as to the origin of the salmon differ. It seems clear, therefore, that, before the division, the people cannot have inhabited their present district. Where they came from is another matter, but it is noticeable that the linguistic evidence points to a connection with Oceanic stocks.

An interesting paper on the Blackfoot Medical Priesthood was presented by Dr. John Maclean. The paper dealt with every aspect of the subject, with the initiation ceremonies, dress, and facial decoration, and with the causes of disease, especially the influence exerted on the mind and body of the native by his belief in evil spirits. Native medicines and remedies were also discussed, and the value of the work of the medicine-men among the natives and the influence exercised by them on the native religion.

Mr. William McIntosh presented a paper on the present native population and traces of early civilisation in the Province of New Brunswick. At the present time the native and half-breed population numbers about 1500, and is composed of two tribes, the Micmacs, on the east coast and part of the shores of the Bay of Fundy, and the Malecites, on the St. John River valley, which is approximately the site of their ancient habitations. There are abundant traces of the prehistoric occupation of the