Fri. it was seen again Fri. evening, the 19th, though very low in the north.)

CHARLES F. BROOKS

The occurrence of the Northern Lights is of course unquestionably the most spectacular evidence of the high degree of ionization of the upper atmosphere that may be produced from radiation disturbances apparently originating in the sun itself. The use of radio technique affords a new tool for accumulating data that may ultimately help in the solution of the mechanism involved in the ionization of the upper air due to such solar conditions as are conducive to the incandescent visible discharges producing displays of the Aurora Borealis.

The phenomenally high field intensities that appear to predominate the week previous to the occurrences of aurorae with their accompanying ionospheric disturbances suggests that field intensities may be used along with sunspot activity to predict periods of poor communication.

OBITUARY

WALTER MATHEW DUNAGAN

MAY 23, 1894–NOVEMBER 24, 1941

WALTER M. DUNAGAN, associate professor of theoretical and applied mechanics at Iowa State College, died on Monday, November 24, as a result of an emergency operation for a stomach ailment.

Professor Dunagan was born in Des Moines 47 years ago, was a graduate of East Des Moines High School, had an A.B. degree from Simpson College, 1919, a B.S. in civil engineering from Iowa State College, 1923, followed by degrees of civil engineer, 1928, and master of science, 1930. His freshman year was spent at Grinnell College. In both high school and college he participated in football and in distance running. He was captain of the track team at Simpson and helped in football coaching for a number of years at Iowa State. His interest in athletics and hunting continued and he was one of the well-known amateur golfers of the state. He was a former member of the athletic council of the college and assisted locally at most of the major athletic events, including the Drake Relays. At the outbreak of the First World War he enlisted in the 109th Engineer Regiment of the 34th Division and held the rank of first lieutenant in the infantry at the time of his discharge in 1919.

After preliminary field experience with the South Dakota and Iowa State Highway Departments, Mr. Dunagan joined the civil engineering staff of Iowa State College in 1924 and in 1933 became associate professor of theoretical and applied mechanics. He had long been interested in construction and engineering materials, his best known technical contributions being the result of his researches and writings in the field of concrete. In this field his name was internationally known and he was drawn in as a consultant on a great variety of concrete problems many of which were in connection with novel or large construction. He was also the friend and counselor of the small concrete practitioner and for years there have been few concrete jobs in central Iowa upon which he was not consulted formally or informally. He spent occasional periods as a member of the research and testing staff of the Portland Cement Association at Chicago.

Professor Dunagan was the inventor of equipment widely used in the analysis of fresh concrete; the author of two important bulletins of the Iowa Engineering Experiment Station, one on "The Field Control of Concrete" and the other on "The Use of Color in Concrete"; of a manual for use in the teaching of courses in plain concrete and of several technical papers and discussions published in the proceedings of the American Concrete Institute and the American Society for Testing Materials. About five years ago he developed a type of reinforced tile floor construction which already has gained wide acceptance and use. One of his most interesting and successful researches was his own residence of monolithic concrete, completed only a year ago, in which he embodied many unique features of both a utilitarian and artistic nature.

His membership in professional and technical organizations included: The American Society for Testing Materials, in which he had long been active, being chairman of Subcommittee VIII of C9, on Permeability Tests of Concrete; American Concrete Institute, some of his most recent labors having been in connection with the work of Committee 613, on the Design of Concrete Mixtures, besides being chairman of Committee 408 on Color in Concrete, and the Iowa Engineering Society, of which he was for a number of years chairman of the Committee on State Building Code. He was also a member of the Society for the Promotion of Engineering Education and was a registered engineer in the state of Iowa. He belonged to Epsilon Sigma and Sigma Xi, scholastic and scientific honorary societies, to the Knights of St. Patrick and to the Alpha Tau Omega social fraternity. He was a member of the American Legion and the Masonic Lodge and had served as superintendent of the Methodist Sunday School and as a member of its orchestra.

As a teacher he was inspiring and exerted a pro-

nounced motivational influence upon his students. His mental processes were original and through his encouragement and stimulating suggestions, he started or contributed to a great variety of enterprises with many of which his name was never formally associated. Typical of these was the College Recreational Area, which contains one of the unique golf courses of the country. The original concept was his and he had had his students in surveying working on that hypothetical project years before there was a thought of its possible fulfillment.

Professor Dunagan lived an intense life filled with many interests. Into each experience he breathed significance; chores became adventures. Few indeed were the situations in which he failed to discover both color and humor. He was a lover of people and beloved by them; to know him was to be his friend. His passing came at the height of his productive effort; on the morning of his death he said "I am going; there are so many things I want to do." That was characteristic of the man.

His home life was a happy one; he is survived by his wife, Dorothea Porterfield Dunagan, and two daughters, Dorothea M., a sophomore in college, and Sheila P., a junior in high school, and by three brothers and a sister.

HERBERT J. GILKEY

IOWA STATE COLLEGE

SCIENTIFIC EVENTS

CHILD ENDOWMENT IN AUSTRALIA

ACCORDING to *The Lancet,* by an act which came into force early this year a federal system of child endowment has been introduced in Australia. From July 1 a payment of 5*s.* per week will be made for each child under sixteen years of age in families containing more than one child, and a similar allowance will be made to children in approved charitable institutions. Normally the endowment will be paid to the mother and must be used for the child's "maintenance, training and advancement." It is estimated that about a million of the 1,830,000 children in Australia under the age of sixteen belong to families with more than one dependent child so that the annual cost of the scheme is some £13,000,000. Two millions of this will be gained by abolishing income-tax abatements for each child after the first (so that the 5*s.* will not in some cases be a clear gain), two millions from general revenue and nine millions from the proceeds of a new pay-roll tax. An account of this legislation given in the *Ministry of Labour Gazette* for September, 1941, shows that the tax is payable by all employers with a pay-roll of over £20 a week and is at the rate of two and one half per cent. on all wages, salaries, commissions, bonuses or allowances paid in money or kind. A similar but localized movement to ease the position of families with young children is reported from Birmingham. Acting on the advice of its salaries, wages and labor committee the city council has decided to give married employees 2*s.* 6*d.* a week for every child of school age, an innovation held to be more appropriate to war-time conditions, and fairer, than a general advance in wages for married and unmarried alike. The alternative method now to be widely extended is to provide a good midday meal for all school children. This has the special advantage that it reaches not only necessitous children but also those whose mothers find it difficult, with or without endowment, to combine work of national importance in factories or elsewhere with the task of running a household. Appliances, staff and suitable premises may be hard to come by, but such difficulties are not to stand in the way.

THE FOURTH CONSTITUTIONAL CONVENTION OF THE CONGRESS OF INDUSTRIAL ORGANIZATIONS

AT the fourth constitutional convention of the Congress of Industrial Organizations held recently at Detroit, the following resolutions were adopted:

WHEREAS (1) The Federation of Architects, Engineers, Chemists and Technicians has organized a majority of the 800 industrial research workers at the Shell Development and Research Laboratories at Emeryville, Calif., one of the outstanding research institutions in the world; and

(2) The American Chemical Society, a national professional scientific association, whose officers are a cross section of the outstanding industrial corporations in the nation, such as Standard Oil and du Pont, has launched an anti-union campaign nationally, threatening a permanent blacklist against chemists and technicians who join the CIO, and cooperating with anti-union employers in a process of intimidation; now, therefore, be it

Resolved (1) That the Fourth National Convention of the Congress of Industrial Organizations goes on record as supporting the organization of the Shell Development and Research workers, the Federation of Architects, Engineers, Chemists and Technicians, in its efforts to insure the rights of collective bargaining to the technical workers, and

(2) That we advise the National Labor Relations Board of our support to the Federation of Architects, Engineers, Chemists and Technicians' petition for a single bargaining unit; and

(3) That we emphatically protest the anti-union, undemocratic interference of the American Chemical Society in the efforts of technical workers to achieve industrial democracy and collective bargaining rights, and denounce