with the aid of Baker and Carmichael, a new era. He was an experienced and skilful teacher, vho understood and sympathized with student difficulties, and he was an enthusiastic research worker . Hehad an uphill job, but the status the department at Queen's has had for a good many years now is ample evidence of his success .

In spite of heavy teaching and administrative duties, Clark carried on active research for many years. Some of his early work reflected his training in electrical engineering. For example, for some years.he examined the resistance of carbon contacts in the solid-back telephone transmitter, dealing with such problems as the variation of resistance with time, the possible effect on wave form of the changes in resistance which occur with increasing and decreasing pressure on the diaphragm, and with the effect of gas.

Clark's main research work, however, was in the field of thermodynamics and in the study of the molecular properties of liquids and vapors, especially in the region of the critical point. As we have already noted, work in that field had been started at Clark University. After he came to Queen's the financial aid he had received from the American Academy vas continued. The Transactions of the Royal Society of Canada, vol. IX, 1915 contain one of his important papers on the Viscosity of Ethyl Ether near the Critical Temperature . According *co* what had been termed the classical theory held by such workers as Andrews and van der Waals, at the critical point liquid and vapor phases were identical and, moreover, there could be no liquid above ptH7y5phH7yE

and that the liquid state might persist above the critical temperature. One result of the altered views was a theory due to de Heen and Traube, which postulated that each of the two phases consisted of a mixture of two kinds of molecules, the "liquidogenique" and "gazogenique". This theory, which did not receive universal supportfrom the experts, was attacked by such important workers as Kamerlingh Onnes of Leiden, who with Fabius repeated some of the experiments supporting the theory, and came to the conclusion that "marked differences of density do not exist if sufficient care be taken in filling the tubes with pure gas-free liquid".

In anattempt to settle the conflicting views Clark undertook a precision study of the viscosity of Ethyl Ether in the neighborhood of the critical point. As his method in this investigation is an example of the extreme care and precision with which all his research work was carried out, the following description of his apparatus is quoted from an article in Chemical Reviews,

point by means of a low power telescope with an eye-piece scale, the decrement was easily calculated.11

This is not the place to discuss the details of this investigation and we note only the conclusion given in the above paper. "If we deal with final states reached after stirring or long continued heating, there is much evidence in favour of the classical theory of Andrews and van der Waals."

Clark*s earlier work in this field attracted the

fessor Clark. It must have been a bitter disappointment to him that his dream of a cryogenic laboratory at Queen*s was never realized.

In April 1918 a report to the Principal of Queen*s on work carried on under the supervision of the Research Committee shows Clark to have been busy with several investigations, including continued workon the resistance of carbon in the telephone transmitter, a study of the electrical properties of the capillary electrometer, work on the law of corresponding states applied to air, measurements of the angle of contact made with glass by mercury when covered withdilute acids, study of a method of preparing clean glass surfaces for surface tension measurements, study of the viscosity of liquids and vapors near the critical points, and a survey of the earth*s magnetic field near Kingston.

A more detailed reference must be made to an important series of papers, which appeared in the Ca-

chambers separated by a freely moving but closely fitting piston, whose movement was controlled by an external periodic magnetic field. The frequency was varied until resonance occurs, and gamma was readily calculated from the resonance frequency, the pressure of the gas, and the constants of the apparatus. Since precision measurements of low frequencies were necessary, Clark and Katz designed a low—frequency dynatron oscillator with a range from 10 to 100 cycles per second, and a power output of 10 watts. Frequencies could be maintained and measured to one part in 30,000, over a period of several hours.

Using this method, which is particularly suitable for examining the variation in the value of gamma with pressure at constant temperature, Clark and Katz made measurements on helium, argon, hydrogen, nitrogen, carbon dioxide, sulphur dioxide and nitrous oxide. This piece of work deserves to rank as classic

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adopted. Grants for apparatus were made to members of staff, but only to those who had demonstrated their ability to do research. Of even greater importance in a university where teaching loads were heavy and where research could often be done only in the long vacation, money was provided for senior undergraduate and gra-

Canadian universities is ample evidence of the far-sightedness of A.L. Clark.

Although not a man to slap one on the back, TDean Clark could be approached freely by both students and members of staff and his counsel was sought by both groups. As Chairman for many years of the Service Control Committee of the Engineering (Students) Society, he took a keen interest in its dual activities of operating an Employment Service and a bookstore known as Technical Supplies. Over the doorway of a pleasing stone building which houses the club room of Queen's Engineering students and the University Book Store, the name Clark Hall is inscribed, afitting tribute to one who rendered great service to Queen's and her students.

His services extended far beyond the University. When he retired in 1943 he was Chairman of the National Unemployment Insurance (Kingston office), Vice-Chairman of the Kingston Welfare Committee and Chairman of the Sub-committee for the Home for the Aged, a member of the Board of Governors and Vice-Chairman of the Building Committee of the Kingston General