

# Extracts from College Annual Report

## 1952-1953

### RETIREMENTS

The departure of PROFESSOR ROBINSON, Vice-Principal and Head of the Department of Physics, affects the entire College community with a sense of personal loss.

Such is the affection in which he is held that it is impossible to talk of him simply in terms of professional achievement, considerable though this is. He came to Queen Mary College as Professor of Physics in 1930 having been elected in the previous year to a Fellowship of the Royal Society. Behind him were many years of work with Rutherford during one of the most significant phases of atomic research. His most recent distinction is his election in 1950 to the Vice-Presidency of the Royal Institution.

He has given to this College long and devoted service both as a member of the Governing Body and as Vice-Principal. His guiding hand has been felt in all its affairs from matters of high policy to the more domestic question of maintaining its cellars: he is a well-known connoisseur of wine. Modest, warm-hearted and richly appreciative of life, it is the effect of such personalities that marks ever more strongly, the divergence between an educational institution and a college in the fullest sense.

### DEPARTMENTAL REVIEW

There has been no substantial change during the session 1952-53 in the formal degree courses in Physics; a start has, however, been made with short series of special lectures for First Year Honours students. These lectures are entirely unrelated to examination requirements, and are intended to stimulate interest in the history, methods and content of physics and in the profession of science.

The students' Physical Society has had a full and successful initial year, and has been active in inviting speakers and in visiting research and other laboratories.

Research in theoretical physics has been actively proceeding—especially in statistical mechanics and the physics of fluids by Dr. Eisenschitz and a number of research students, and by Dr. Davies in advanced thermodynamics. Dr. Eisenschitz and Dr. Davies have been invited to read papers at an International Conference in Rheology at Oxford in July 1953. Dr. Eisenschitz and Dr. Leech are also working on special problems of intermolecular effects in helium.

In experimental research, Dr. Jones and nine research students have continued to expand the scope of the work in low-temperature and solid state physics, assisted by a generous grant from the Department of Scientific and Industrial Research. At present the Physics Department has three helium liquefiers and two hydrogen liquefiers in operation, and two additional helium liquefiers under construction. A second special non-contaminating gas compressor has been built in the College workshop (using a motor-cycle engine) and an industrial company has now undertaken the construction of two machines similar in principle but designed on more conventional and robust lines. An outdoor store for hydrogen cylinders has been planned. The Hydrogen will be piped to the cryogenic laboratories and the danger and inconvenience of handling cylinders indoors thus largely obviated.

Among new subjects on which research has been started since last year's Annual Report are: the high-pressure equation of state of liquid argon; the electrical resistance of metals at high pressures and low temperatures; the development of low-temperature bolometers of extreme sensitivity for the detection of minute quantities of radiant

energy. The emphasis in much of the work now in progress is towards the combination of high-pressure and low-temperature techniques by novel methods.

Many members of staff are carrying out research in allied fields. Dr. Leech with two research students is studying certain properties at micro-wave frequencies; a new research started since last year concerns the Faraday effect in ferrites at these frequencies. Dr. Barker has developed ultrasonic methods for the measurement of the elastic properties of solids and liquids, and with Dr. Dobbs is applying these methods to the investigation of solid argon. Mr. Heastie is studying the phase-equilibrium behaviour of the solidified "rare gases," and Dr. Pryde has completed an investigation into the properties of vitreous water.

In two entirely different fields, Dr. Irons has been carrying out and directing research upon (1) the viscosities of oxygen-helium mixtures over a 20-degree temperature range, and (2) the surface tensions of liquid crystals. The first of these researches, of which an extension is planned, originated in an inquiry from the London Hospital Medical College.

Dr. Irons was invited by the University to visit the B.Sc. (General) Examination in the summer of 1953 at the University College of the West Indies.

Dr. Leech spent a period as Vacation Consultant at the Telecommunications Research Establishment during the summer of 1952, and it is expected that some members of staff will be making similar contacts with other Government Research Establishments in 1953.

Dr. Jones has been elected to the Physical Society's Papers Committee and the Committee of the Low-Temperature Group.

Professor Robinson has been reappointed to the Royal Society's Scientific Publications Board and Newton Letters Sub-Committee, and as a Royal Society representative on the British Council's Science Advisory Committee.

The series of weekly Advanced Lectures, begun in the previous session, has been continued. Courses have been given on "Superconductivity (in which Professor Ferraro gave invaluable help) and "fluctuations."

Following the retirement of Professor Robinson, Dr. G. O. Jones has been appointed University Professor, and Head of the Department of Physics, from 1st October, 1953.

## **DEGREES AWARDED**

### **Ph.D**

G.H.A. COLE February 1953

F.D. STACEY July 1953

### **M.Sc.**

J.A. PAVIE July 1953

### **B.Sc. SPECIAL EXAMINATION PHYSICS**

First Class Honours:

H. BOWEN

D. GUGAN

Second Class Honours (Upper Division):

L. N. LARGE

Second Class Honours (Lower Division):

A.A. BALCHIN

A.J. HANKINS

S. P. JONES

R. R. PRESTON

J. A. STACEY

Pass:

R. DE P. GALLOWAY