JUNIOR GRADE SCIENCE, AN INTRODUCTORY COURSE OF PHYSICS AND CHEMISTRY FOR IRISH INTERMEDIATE SCHOOLS

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BY

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PREFACE

In the compilation of this book the object has been to provide in convenient form a course in Physics and Chemistry suitable for use in connection with the new syllabus prescribed for Junior Grade students by the Department of Agriculture and Technical Instruction for Ireland. It is interesting to note, in connection with the new Irish syllabuses in science, that they anticipate by about a year the conclusions of Sir J. J. Thomson's Committee appointed to enquire into the Position of Natural Science in the Educational System of Great Britain.

The report states that "A general course in science should fulfil two functions; (*a*) it should train the mind of the student to reason about things he has observed for himself and develop his powers of weighing and interpreting evidence; (*b*) it should also make him acquainted with the broad outlines of great scientific principles, with the way in which these principles are exemplified in familiar phenomena and with their applications to the service of man." Further, the report points out that the time allotted to the study of science, even if on the most liberal scale, does not permit the various branches of science to receive the detailed treatment possible where only one or two branches are attempted. "There must necessarily be great gaps in the student's knowledge of these branches, but in the general course we think these should be distributed, rather than that one or more of these branches should escape consideration altogether."

The new syllabuses of the Department aim at carrying out this object, and in so doing they introduce certain changes in the matter and methods of science teaching in Irish Intermediate Schools. In the Junior Grade (the needs of which this book are intended to meet) students are now required to possess the knowledge hitherto comprised in the two introductory courses. The present volume is so arranged that the necessary ground may be covered in the course of the school

year if five hours per week be devoted to the subject. It is possible, however, by judicious selection of the matter to be dealt with by demonstration, to cover the ground in the course of the year when demands upon the time-table will permit only four hours per week to be given to science teaching.

The questions at the ends of the chapters are taken from the Intermediate Examination papers; and acknowledgment is gratefully made of the courtesy of the Assistant Commissioners in permitting these to be used.

I have to express my gratitude to Prof. R. A. Gregory and Mr. A. T. Simmons for permission, of which I have fully availed myself, to use the subject-matter and diagrams in their numerous text-books, and also for much valuable advice and criticism while the book was passing through the press.

GEORGE A. WATSON.

September 1918.

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