# IV. — Subsequent Improvement.

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in the case of Applied Mathematics, of seeing to what extent practical work is encouraged.

There is no study of Educational Legislation except in so far as

it may be dealt with under the History of Education.

The professional training may be tested by a definite written examination or by essays. The diploma may be awarded partly on the mark given for these examinations or essays and partly on the mark given on the student's ability to teach as shown during the three months' practice. On the other hand there may be written examination, in which case the award may be in part on the student's written work throughout the year's training or on a thesis presented by the student.

As to the current opinion on the value of these courses, there is no doubt that a quarter of a century ago they were not regarded with particular favour. The figures previously quoted as to the proportion of trained teachers now in the schools gives some idea

of the changed position in this respect.

The method of training referred to hitherto has been that of the University Training Departments. There are, however, two or three other methods that should be mentioned.

- (i) The Training Colleges, of which there are a great many, aim primarily at the training of teachers for the Elementary Schools, but a number of these obtain posts in Secondary schools either at the close of training or, later on, by transfer. The general lines of the training are similar to those described except that there may be no special attention given to Mathematics.
- (ii) The Board of Education may recognize arrangements for the training of persons who have University Degrees in courses of not less than a year in Secondary schools. Any such arrangements must provide for a systematic study of the practice and principles of teaching, and the school must satisfy the Board that it can provide a course suited to the needs and capacity of the particular student concerned. Few schools carry on this form of training, and in no school would there be more than one or two students.

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Courses in Mathematics for Secondary school teachers are held in the summer vacation. There is no compulsion to attend, but there is considerable demand. In 1931, for example, something like 200 teachers applied, and of these 80 were selected for the courses.

It is not usual to grant a term or terms leave, even after some years teaching, in order to keep in touch with developments in the subject; there is, however, a Mathematical Association with numerous branches all over the country, and with a periodical (see § VI below), which help in this direction.

Arrangements may be made by which a teacher may pay an observation visit to other schools where the subject is unusually well organised or taught.

It is quite common for teachers to produce text-books on the subject, for teaching purposes. It is unusual for them to occupy themselves in research or to contribute to any great extent to the sum total of knowledge of the subject. Nor is it common for teachers in Secondary schools to advance to University posts. One or two well-known mathematicians, however, have spent some part of their career in school teaching, as, for example, F. S. Macaulay and W. P. Milne.

### V. — DUTIES AND RESPONSIBILITIES.

A teacher whose main subject is Mathematics may spend part of his time in teaching any other subjects. If he is not fully occupied with his own subject he most commonly helps with the Physics.

Mechanics of an elementary kind may be taught either by teachers of Science as an experimental subject in the early part of the Science course or, from the age of sixteen to eighteen, as a branch of Mathematics by the Mathematical teachers.

A preliminary course in descriptive geometry usually precedes the deductive course. It is taken by the same teacher and does not, as a rule, amount to a great deal.

The chief Mathematical teacher in any school is responsible for formulation of programmes of study and for co-operating with the heads of the Science and other departments. Such programmes, etc. will be always subject to the approval of the Head Master or Mistress.

Teachers of Secondary schools are not required by law to have any qualifications, though they are in most cases graduates and are recruited by the methods already indicated.

The great majority of teachers are paid salaries in accordance with the Burnham Scale, and are eligible for the Government pension.

### VI. — BIBLIOGRAPHY.

Of the very few books dealing with the teaching of Mathematics, or of particular branches of Mathematics, at the stage with which this report is concerned, the best known are: