# A STUDY OF THE PERFORMANCE OF STUDENT NURSES IN RELATION TO A NEW METHOD OF TRAINING, WITH SPECIAL REFERENCE TO THE EVALUATION OF AN EXPERIMENTAL COURSE OF BASIC NURSING EDUCATION BEING CONDUCTED IN SCOTLAND.

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by

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CONTENTS


| | | |
|---|---|---|
| Section I | HISTORICAL BACKGROUND OF THE EXPERIMENT | 1-53 |
| Chapter I | The Need for Reform in Basic Nursing Education | 1-18 |
| Chapter II | The Development of Two New Methods of Basic Nursing Education | 19-36 |
| Chapter III | The Demand for the Improvement of Nursing Education in Britain | 37-53 |
| SECTION II | THE OBJECTIVES AND EVALUATION OF THE SCOTTISH EXPERIMENT | 54-74 |
| Chapter IV | The Principles and Objectives of the Glasgow Experiment | 54-64 |
| Chapter V | The Method of Evaluating the Glasgow Experiment | 65-74 |
| SECTION III | THE EXPERIMENTAL AND REGULAR COURSES AND THE ALTERNATIVE AND CONTROL STUDENTS | 75-127 |
| Chapter VI | The Principal Differences between the Alternative and Regular Nursing Courses in Scotland | 75-105 |
| Chapter VII | An Analysis of the Characteristics of the Alternative Control Students | 106-127 |
| SECTION IV | A COMPARATIVE ANALYSIS OF THE PERFORMANCE OF THE EXPERIMENTAL AND CONTROL NURSES AS STUDENTS | 128-204 |
| Chapter VIII | The Performance of the Alternative and Control Students in the General Nursing Council Final State Examination | 128-157 |
| Chapter IX | The Performance of the Alternative and Control Students in the Multiple Choice Tests | 158-172 |
| Chapter X | The Performance of the Alternative and Control Students in the Ward Practical Tests | 173-189 |
| Chapter XI | The Analysis of Sickness and Wastage among the Alternative and Control Students | 190-204 |

| | | |
|---|---|---|
| SECTION V | A COMPARATIVE ANALYSIS OF THE PERFORMANCE OF THE ALTERNATIVE AND CONTROL NURSES AFTER COMPLETING THE FINAL STATE EXAMINATION | 205-259 |
| Chapter XII | The Performance of the Alternative Interne Nurses compared with the Control Staff Nurses | 205-239 |
| Chapter XIII | The Follow-Up Study | 240-246 |
| Chapter XIV | The Opinions of Nurses Associated with the Experiment | 247-259 |
| SECTION VI | A COMPARATIVE ANALYSIS OF THE CHARACTERISTICS AND PERFORMANCE OF THE ALTERNATIVE AND AVERAGE STUDENT NURSES IN SCOTLAND | 260-285 |
| Chapter XV | A comparative Analysis of the Characteristics and Performance of the Alternative and Average Student Nurses in Scotland | 260-285 |
| SECTION VII | CONCLUSIONS AND IMPLICATIONS OF THE GLASGOW EXPERIMENT | 286-310 |
| Chapter XVI | A Discussion of the Findings and Implications of this Study | 286-310 |
| SECTION VIII | REFERENCES<br>Books<br>Reports and Surveys<br>Articles<br>Legislation and Debates | 311-315<br><br><br><br>311-315 |
| SECTION IX | RAW DATA TABLES | 316-378 |
| I - III | Intelligence Tests | 316-317 |
| IV - XXIII | Results of General Nursing Council re-marked Papers | 318-337 |
| XXIV - XXXIX | Results of Multiple Choice Tests | 338-348 |
| XL - XLI | Results of Ward Practical Tests | 349-350 |
| XLII - LXIX | Results of Observation Sessions during Interne Year | 351-378 |

| | | |
|---|---|---|
| SECTION X | APPENDICES | 379-423 |
| I | Multiple Choice Test 1958 | 379-402 |
| II | Multiple Choice Test 1959 | 403-418 |
| III | Student Nurse Survey Questionnaire | 419-423 |

## ANALYSED TABLES

### Chapter III

Table 1. Distribution of Student Nurse Wastage before the Completion of Training as indicated in the Working Party Report and the Birmingham Wastage Survey.

### Chapter VI

Table 2. Range and Extent of Practical Experience available to Alternative and Glasgow Royal Infirmary Regular students on their respective Courses.

Table 3. Integrated versus Intermittent Arrangement of Theoretical Programmes in the Experimental and Glasgow Royal Infirmary Regular Courses.

Table 4. Number of Lectures given to the Alternative and Glasgow Royal Infirmary Regular students in their respective Schools of Nursing.

Table 5. Principal Additional Lectures and Tutorials taught in the Experimental Course and the Glasgow Royal Infirmary Regular Course.

Table 6. Number of Tests and Examinations taken by the Alternative and Glasgow Royal Infirmary Regular students during their respective Courses (excluding General Nursing Council examinations.)

Table 7. Number of Hours Practical Ward Work carried out by the Alternative and Glasgow Royal Infirmary Regular Students.

### Chapter VII

Table 8. Date of Commencement of Course and Number of Alternative and Control Students in the Evaluation Study.

Table 9. Percentage of Alternative and Control Students who have School Leaving Certificate.

Table 10. Age of Alternative and Control Students at the Commencement of the Course.

Table 11. Type of Job held by Alternative and Control Students after leaving school.

## ANALYSED TABLES


Table 12. Number of Alternative and Control Students who have previously passed official Nursing Examinations.

Table 13. Students in Alternative and Control groups who have had previous hospital nursing experience.

Table 14. Distribution of the Intelligence Scores of the Alternative and Control students in Glasgow Royal Infirmary in the National Institute of Industrial Psychology Group Test 33.

Table 15. Number of Applications received, accepted, withdrawn and rejected for the Experimental Course.

Table 16. Percentage of Alternative and Control Students eligible to take the Final State Examination without deferment.

Table 17. The Grading of Alternative and Control Students' Marks in the Final State Examination, October, 1958.

Table 18. The Grading of Alternative and Control Students' Marks in the Final State Examination, October, 1959.

Table 19. The Grading of Alternative and Control Students' Marks in each subject of the Final State Examination October, 1958.

Table 20. The Grading of Alternative and Control Students' Marks in each subject of the Final State Examination October, 1959.

Table 21. The Order of Merit achieved by the Alternative and all other Control Students in the Final State Examination, October, 1958.

Table 22. The Order of Merit achieved by the Alternative and all other Control Students in the Final State Examination, October, 1959.

Table 23. The Order of Merit achieved by Alternative, Regular and Pre-nursing School Control Students in the Final State Examination, October, 1958.

Table 24. The Order of Merit achieved by Alternative, Regular and Pre-nursing School Control Students in the Final State Examination, October, 1959.

## ANALYSED TABLES


Table 25. Performance of the Alternative and Control Students in the Final State Examination in terms of Educational Standard, October, 1958.

Table 26. Performance of the Alternative and Control Students in the Final State Examination in terms of Educational Standard, October, 1959.

Table 27. Performance of the Alternative and Glasgow Royal Infirmary Control Students in October 1958 and 1959 Final State Examination in terms of N.I.I.P. Group Test 33.

Table 28. The Influence of Educational Standard on the Order of Merit achieved in the Final State Examination by Glasgow Royal Infirmary and Edinburgh Royal Infirmary Control Students.

Table 29. The Influence of Intelligence Score on Order of Merit achieved in the Final State Examination by the Alternative and Glasgow Royal Infirmary Control Students.

Chapter IX

Table 30. Multiple Choice Tests - Subjects and Marks allocated.

Table 31. The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Test, September, 1958.

Table 32. The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Test, September, 1959.

Table 33. The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Test in terms of Educational Standard, September, 1958.

Table 34. The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Test in terms of Educational Standard, September, 1959.

Table 35. Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Tests in terms of the N.I.I.P. Group Test 33, 1958 and 1959.

## ANALYSED TABLES


Table 36. The Influence of Educational Level on the Results achieved in the Multiple Choice Tests by the Glasgow Royal Infirmary Control Students, 1958 and 1959.

Table 37. The Influence of Intelligence Score on the Results achieved in the Multiple Choice Tests by the Alternative and Glasgow Royal Infirmary Control Students, 1958 and 1959.

Chapter X

Table 38. Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Test, August, 1958.

Table 39. Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Test, May 1959.

Table 40. Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Test in terms of Educational Standard, August 1958.

Table 41. Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Test, in terms of Educational Standard, May, 1959.

Table 42. Performance of Alternative and Glasgow Royal Infirmary Control Students in Ward Practical Test in terms of the N.I.I.P. Group Test 33 in 1958 and 1959.

Table 43. The Influence of Educational Standard on the results achieved by the Glasgow Royal Infirmary Control Students in the Ward Practical Tests, 1958 & 1959.

Table 44. The Influence of Intelligence Score on the Results achieved by the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Tests, 1958 & 1959.

Chapter XI

Table 45. Average Number of Days Sickness per Annum for the Alternative and Control Students.

## ANALYSED TABLES


Table 46. Length of Sickness Absence for the Alternative and Control Students in each year of the Course.

Table 47. Wastage Rates of All Alternative and Control Students before taking the Final State Examination.

Table 48. Rate of Wastage of Alternative and Control Students in terms of background characteristics.

Table 49. Causes of Wastage amongst All Alternative and Control Students up to time of taking Final State Examination.

Chapter XII

Table 50. Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, December, 1958.

Table 51. Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, March, 1959.

Table 52. Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, August, 1959.

Table 53. Status of First Group of Alternative Nurses on their Wards at the time of Observation Sessions.

Table 54. Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, November, 1959.

Table 55. Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, February-March, 1960.

Table 56. Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions, August, 1960.

Table 57. Status of Second Group of Alternative Nurses on their Wards at the time of Observation Sessions.

Table 58. Performance of the Alternative Nurses in the First Interne Year in terms of Educational and Intelligence Standards.

## ANALYSED TABLES


Table 59. Performance of the Alternative Nurses in the Second Interne Year in terms of Educational and Intelligence Standards.

Chapter XIII

Table 60. Time at which First Group of Alternative and Control Nurses left their Training Schools after taking the Final State Examination.

Table 61. Type of Post or Occupation chosen by First group of Alternative and Control Nurses after leaving their Training Schools.

Chapter XV

Table 62. The Educational and Intellectual Characteristics of the Alternative and Average Student Nurses in Scotland.

Table 63. Standard of School Leaving Certificate achieved by Alternative, Average and Control Student Nurses in Scotland.

Table 64. The Personal Characteristics of Successful and Unsuccessful Average Student Nurses in terms of the Preliminary State Examination.

Table 65. The Educational and Intellectual Characteristics of Successful and Unsuccessful Average Students in terms of the Preliminary State Examination.

Table 66. The Performance of the Average Student Nurses in the Anatomy and Physiology Paper of the Preliminary State Examination.

Table 67. The Performance of the Average Student Nurses in the Health and Nutrition Paper of the Preliminary State Examination.

Table 68. The Performance of the Average Student Nurses in the Nursing Written and Practical Tests of the Preliminary State Examination.

Table 69. Time taken by the Average Students to pass Part I of the Preliminary State Examination.

## ANALYSED TABLES


Table 70. Time taken by the Average Students to pass Part II of the Preliminary State Examination.

Table 71. Principal Causes of Wastage amongst average Student Nurses in Scotland up to the time of taking the Preliminary State Examination.

Table 72. Causes of Wastage amongst Students in General, Sick Children's and Infectious Diseases Hospitals in Scotland commencing their Course between 1.9.57 and 31.12.58 up to the time of taking the Final State Examination.

Table 73. Causes of Wastage amongst Alternative, Average and Control Student Nurses before taking the Final State Examination per 1000 Students entering.

Table 74. The Percentage of Alternative, Average and Control Students falling into Educational and Intellectual Categories 1, 2 and 3.

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# INTRODUCTION

## The Establishment of the Glasgow Experiment

Nearly five years ago in September 1956 the first British experiment to reduce the length of the basic course in general nursing education was commenced in Glasgow Royal Infirmary.[1] The principal objectives of this new course were firstly to demonstrate whether student nurses could be prepared for the Final State Examination of the General Nursing Council for Scotland in two instead of three years, and secondly to prepare them to assume the role of acting staff nurses in a third, interne year. This experimental project was sponsored and financed by the Department of Health for Scotland and the Nuffield Provincial Hospitals Trust.

At the time the experiment was established it was also decided that an official evaluation should be carried out, and it is w ith this undertaking that this study is principally concerned.

1. Throughout this study the word 'basic' is used in relation to nursing education, because this investigation is concerned only with the preparation of the student nurse up to the time of taking her professional qualifying examination, which in Scotland is the Final State Examina-:tion of the General Nursing Council.

SECTION I

CHAPTER I

## The Need for Reform in Basic Nursing Education

It would be imprudent to give any details relating to the method or results of this evaluation study before presenting an outline of the historical process which has led to this and other similar experiments elsewhere in recent years. The main problem it has sought to solve has been germane to the nursing profession for many years; how may the education of the student nurse be improved without upsetting service obligations to the patient?

As in so many other aspects of nursing thought and action it is of value to look at the interpretation of this situation by Florence Nightingale as she established the first training school for probationer nurses in St. Thomas' Hospital exactly a century ago. Miss Nightingale was the first nurse to establish a division between the educational and service commitments of the probationer nurse.[1] This principle was ensured by the endowment fund, raised by grateful citizens after the Crimean War, which enabled the school of nursing to pay its own way, thereby placing educational values alongside the service needs of the hospital. "An uneducated man who practises physic is justly called a quack,

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1. "In the general field what differentiated Florence Nightingale's opinions from the ideas of her contemporaries was her insistence on the necessity of training for work. Training was in the 'sixties not felt to be needful for nursing or indeed for teaching, or for any other woman's profession". L.R. Seymour - General History of Nursing, p.91

perhaps an imposter. Why are not uneducated nurses called quacks or imposters? Simply, I suppose, because there are few who think a man can understand medicine and surgery by instinct. But till the last ten to twenty years people in England thought that every woman was a nurse by instinct."[1] She also recognised that proficiency could not be attained without adequate experience in the wards with the patients; and no nurse has ever placed greater emphasis on the need for careful and accurate observation of the patient, which was stressed in her Notes on Nursing. In Miss Nightingale's opinion both education and service were integral and equally important aspects of the probationer's training. The knowledge she required was specific to her work but equally could only be learnt by continual practice at the bedside.

The extent of the education required by nurses in 1860 was minimal by modern standards, and partly for this reason Miss Nightingale believed that probationers could be recruited from all ranks and classes of society and make, as many certainly did, good bedside nurses.[2] Equally, however, she encouraged the recruitment

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1. From Suggestions on the Subject of Providing and Organising Nurses for the Sick Poor in Workhouse Infirmaries - Florence Nightingale, (1867).

2. "The candidates who are best qualified for the ordinary duties of the hospital nurse appear to be the daughters of small farmers who have been used to household work, and well-educated domestic servants. Persons of superior manners and education, ladies in fact, are not as a rule the best qualified but rather women of somewhat more than ordinary intelligence emanating from those classes in which women are habitually employed in earning their own livelihood." The Origin and Early Development of Two English Training Schools for Nurses. The Nightingale Training School, St. Thomas's, and the Guy's Hospital Training School. By Virginia M. Dunbar, R.N. - Florence Nightingale International Foundation, 1936.

of 'lady' probationers, who paid for their training, and because of their education were able to become the matrons and nursing supervisors required by her new system. In this appreciation of the need for theoretical as well as practical experience, and equally by understanding that in nursing women of a wide range of intelligence and education may find tasks suitable to their abilities, Miss Nightingale saw the significance of the principal problems affecting basic nursing education to this day.

These important principles were not only followed in the establishment of some of the nursing schools in leading British hospitals during the succeeding decades, but were also faithfully copied in three of the earliest American schools of nursing established in 1873.[1] Before, however, this system of training was firmly rooted it was upset by the repercussions of other developments in the field of medicine. It was precisely during these latter years of the nineteenth century that unprecedented advances were being made in all branches of medical science. The story of the development of anaesthetics and aseptic surgical techniques in common knowledge. Such advances necessitated the service of larger numbers of nurses, and no sooner had the early schools proved their value than the flood of demand damaged the educational

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1. Bellevue Hospital, New York.
Connecticut Training School, New Haven.
Boston General Hospital, Massachusetts.

foundation upon which the Nightingale Schools had been built.

> "The loss of these foundations was disastrous from the standpoint of quality of education provided, but the elimination of the expenses they involved made the schools a means of staffing the hospitals at low cost, which helped to increase hospital facilities". [1]

The general tendency was also to lengthen the students' course from two to three years duration in many of the hospitals, in order to prolong the service of the probationers to the hospitals. The labour of young women was cheap, and such changes were made under the pretext of giving them greater experience on the wards. As Dr. Brown commented:

> "if practice made perfect then much would be expected." [2]

Another difficulty besetting the nursing profession before the outbreak of the First World War was the economic and social status of women and the reluctance of society to accept them in any profession. Not only did this mean that there were, compared with the present day, very few careers open to them so that cheap labour in nursing could be exploited, but it also meant that they were not likely to be looked upon as close and valuable colleagues of the doctors. There were exceptions to this rule in many places, but generally during these years there was little or no opposition to the full development of the apprenticeship form of training in nursing and considerable exploitation of their services by the hospitals.

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1. M. Bridgman - Collegiate Education for Nursing - p. 41.
2. E.L. Brown - Nursing for the Future - p. 49.

A few attempts to restore a more professional attitude towards the probationer nurses training were attempted at the very end of the century; but Miss Nightingale herself was by then too old and out of touch with the needs of nurses to appreciate the growing demand for a professional qualifying examination which would at least safeguard some minimum standards of competence. No great change occurred in this situation until the outbreak of the First World War created an immediate demand for skilled nurses.

> "The (First World) War involved an upheaval for the nursing profession. Never before or since were so many patients provided with residential care away from their homes; the higher social classes were included among the patients. Nurses were needed on an unprecedented scale.."1

The war also gave women an unprecedented opportunity of entering the professions and business, and any doubts as to their rights to full political and social amancipation were swept away. The most important outcome of such developments for British nursing was the establishment of the General Nursing Council in 1919, which permitted the registration and examination of the fully qualified nurse for the first time. The merits of this particular achievement were considerable, since statutory registration has become the official hallmark of professional status not only of the doctors, but of all other medical ancillary workers who have more recently come to assist the doctor and nurse in giving patient care.

It was, however, from the other side of the Atlantic that the

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1. Brian Abel-Smith - A History of the Nursing Profession - p. 83.

problems facing the nursing profession during the aftermath of the First World War were challenged more seriously, and the implications of wartime development more widely understood. Certain dynamic recommendations on the reorganisation of nursing education were made in the Goldmark Report published in 1923. It was recommended that the three-year basic course should be reduced in length by about one quarter, by the removal of unnecessary repetition and non-teaching time on the wards, and it was also suggested that the future leaders of the profession should be equipped for their task by University courses in nursing education.[1] But it was not until the 1930's that demands for such changes became more frequent and began to command some attention. These were important years for the nursing profession because the principles of reform developed at this time provided the foundation upon which later and even present-day experiments are being based.

Why should this decade have been so important in the development of nursing thought and ideas? Firstly, because it had by now become apparent that nurses, or at least a certain proportion of them, would give service of greater value to the community and to the medical profession if their education received greater attention in its own right.

> "Medical science makes exacting demands of the nurse for observation and interpretation of symptoms. No longer can

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1. Nursing and Nursing Education in the United States - Report of the Committee on the Study of Nursing Education - Prepared by Josephine Goldmark, 1923, pp. 26, 459-460.

> nurses blindly follow the doctor's directions; they must understand the principles underlying the treatment. The instruction of nurses in the past has too frequently been limited because of the danger that they might overstep into the field of medicine and diagnosis. It is good to note that many physicians are relying more and more upon the nurse for assistance in diagnosis and treatment." 1

The second point was made on several occasions by Dr. Weir in his report on Canadian Nursing Education published in 1932, when he stressed the fact that other occupations were all moving toward a formal college based curriculum and a place in the various university faculties.

> "And yet there is abroad in Canada to-day a certain school of opinion that would single out the nurse from the procession of social progress and ask her to revert to the good old days of apprenticeship and rule of thumb standards. A nineteenth century world, with its more exacting and specialised demands on intelligence, knowledge and ingenuity, resourcefulness and social adaptability is sometimes the solution suggested for our nursing problems." 2

This argument is still being used by nursing leaders; and as Dr. Weir and others have noted the doctors and dentists themselves have had to progress from an apprenticeship to a full university education in order to keep pace with the scientific development in their own professional field.

The recommendations made by Professor Weir in his 1932 Report were an important contribution in the re-awakening desire to improve nursing education.

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1. Extract from Review of Higher Education by the University of New York State, year ending 31.7.31 - p. 129.
   In the "New Deal for Nurses" - G.B. Carter wrote in 1939: "The medical profession, with some notable exceptions, in on the whole nonchalant about nurses and nursing, but, nevertheless, quietly determined to keep the upper hand". (p.21)
2. G.M. Weir - Survey of Nursing Education in Canada, p. 380.

> "Student nurses are dealing with human values and needs with human problems and outlooks as are the teacher, or lawyer, or doctor. If they possess adequate capacity they respond to the same influences and their mentalities develop in the same manner. Part of the nurse's training may be considered utilitarian as opposed to liberal. The same is true in connection with the training of the lawyer or doctor or engineer. Nor does it follow that a thing must be socially useless in order to be cultural. Probably no expression has been so abused by the casual observer of educational trends as has so-called 'cultural education'. It is probable that the most satisfactory solution to the problems of nursing education - as of legal, medical, or other aspects of professional education - can be ultimately offered only by the university, which is most effectively equipped, staffed and financed to provide some leadership and to serve as a clearing house for educational ideas. A university setting and status, apart from the provision of superior facilities for investigation and research, will probably give the study of nursing problems a true dignity and attract a better average type of student". 1

Somewhat different in approach to this same subject was the Lancet Commission Report which was published in Great Britain in the same year. Like the Canadian Survey the British Commission expressed distress at the general backwardness of nursing education in its own country. A high rate of wastage was shown to be due to overlong hours of work, lack of proper teaching on the wards, inadequate numbers of probationers and rigid discipline, especially in the nurses' home. The recommendations which the Commission made, however, indicated that these defects could be remedied within the existing system. In the Report it was stated that:

> "Nursing is essentially a craft, and as such is inseparable from the material on which it is exercised. While the endowment of schools of nursing is highly desirable, it can

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1. G.M. Weir - Survey of Nursing Education in Canada pp.391-392.

> be argued that to maintain the practical quality, which has distinguished British schools of nursing, such schools should be attached to hospitals, rather than to academic institutions of university status". 1

Nor did the Lancet Commission endorse the proposal of the American Goldmark Committee (1923) to reduce the length of the student nurse's course to a little over two years, and their reason for disagreeing illustrates clearly the outlook in Britain at the time in regard to nursing education.

> "The prospect of shorter training might well attract some girls, especially those who desire ultimately to go into other branches of nursing and do not care to contemplate three years of institutional life; but there would be the disadvantage from the point of view of hospitals that the institutions would benefit from the services of each probationer only over a shorter period". 2

This last sentence reveals the hold of the apprenticeship system over British nursing at this time, despite the discontents and discomforts of nurses who gave evidence before the Commission.

The publicity gained by this important British Commission stimulated its own reactions, and within a few years it was evident that the need for more stringent reform was being publicised and discussed in Great Britain. In 1937 a thoughtful booklet was produced by an English surgeon who was greatly concerned at the general inadequacy of the student nurses' educational programme.[3] He maintained that:

"Nursing in Britain under present conditions is a craft

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1. The Lancet Commission Report on Nursing, p. 162.
2. The Lancet Commission Report on Nursing, p. 164.
3. Harold Balme - A Criticism of Nursing Education, 1937.

> rather than a profession, and the system of training at our various hospitals is not a true education but simply a form of apprenticeship". 1

The main obstacle to improvement of conditions he attributed entirely to the economic problem of balancing the hospital budget.

> "There is no getting away from the fact, and the figures in the Lancet Commission's Report provide full proof, that every hospital which admits nurse-probationers and under-:takes to train them saves a considerable amount of money in the process. To put the matter quite bluntly, such hospitals are simply exploiting cheap student labour in the interests of economy". 2

Even more interesting, however, were the recommendations put forward by this writer. He was particularly distressed at the repetitiveness of the student nurse's tasks as a cause of boredom and a deterrent to attracting a better type of candidate. Proper student status in which nursing education was entirely separated from nursing service was the foundation stone, to which was added the necessity of a minimum educational entrance standard and care-:ful supervision of the practical as well as the theoretical course by qualified nursing instructors. The nurse's practical education would then be anologous to that of the medical student who is tutored on the wards by the registrars. Special colleges should be established for these students where they would enjoy the same freedoms, rights and privileges as all other college students. 3

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1. Harold Balme - A Criticism of Nursing Education, p. 13.
2. Harold Balme - A Criticism of Nursing Education, p. 39.
3. These recommendations made in Balme, A criticism of Nursing Education, Chapter III - An Ideal Nursing Service.

This book is of significance not only because of the originality of its approach and recommendations, but because it heralded the beginning of a more progressive outlook in British nursing education; and some of Dr. Balme's suggestions, such as the development of clinical instruction and the complete severance of nursing education and service during training, are the basis of the current Glasgow experiment, with which this study is to be concerned in detail. It will also be noticed that these particular recommendations did not suggest any direct link between the education of the student nurse and British universities; and this was the principal difference between these proposals and the suggestions put forward in the United States and Canadian Reports a few years earlier.

Another outspoken but thoughtful treatise on these problems and their possible solution was written by a British nurse, Miss G.B. Carter, in 1939.[1] Once again the analysis of the deficiencies in the nurse's education led her to similar conclusions:

> "The medical school is separate from the hospital, and the difference in aim between School and Hospital is clearly kept in sight. An analogy can be pressed too closely for none would deny that the essence of the training of a nurse is to make her responsible for nursing in a way that a medical student cannot be made responsible for diagnosis and prescription during his training.
> But little progress will ever be made in the better training of any grade of nurse while her professional education continues to be lost sight of in a multiplicity of routine duties. Finance is the difficulty, not perhaps the chief difficulty for once the public can be convinced of the

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1. G.B. Carter - New Deal for Nurses, London, 1939.

> desirability of such a reform, funds will surely be forthcoming. Good nursing is a matter which concerns everybody. A beginning could be made by creating an educational fund for each training school or group of training schools." 1

As early as 1931 Miss Carter, in giving evidence before the Lancet Commission, had put forward a scheme for a more comprehensive course for student nurses, and in her book these plans are more fully developed, indicating the same approach as that made by Dr. Balme in his treatise two years earlier.

> "Students of nursing, freed from the usual obligations of probationers to do the routine work of the hospital, could acquire the basic principles of nursing much more rapidly than they can do now. The length of time required to attain proficiency - for example, a rigid maintenance of an aseptic technique under different conditions - should be one of the subjects of research. At present no conclusions can be reached. The servant-of-the-hospital element in the training prevents accurate observation of the optimun time necessary to learn various procedures. It is probable that under the present system many nurses never get properly grounded in some elements of their work.
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> Alternation of work in the wards, with periods of study and practice in the School, would probably be necessary. But there should never be a complete divorce between theory and practice, as is suggested in some versions of the block system.[2] The student would not have to attend formal lectures and classes during a period spent mainly in caring for patients, but clinical instruction at the bedside would be available all the time, and she could always go to a practice room to study some procedure which for obvious reasons cannot be repeated on the patient. In the same way, the wards would never be shut to her, even while she was taking a course of lectures. She might not be nursing for the time being, but she could still go and consult the case notes and even talk to patients, and thus keep up a continuity in her work". 3

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1. G.B. Carter - New Deal for Nurses, p. 129.
2. The 'block' system of training is based on the idea of alternate periods of work in the wards and withdrawal to the training school for study and lectures.
3. G.B. Carter - New Deal for Nurses, pp. 164 and 166.

Although there is again no direct mention of the nurses' training being conducted in the university rather than the hospital nursing school the emphasis on the need for student rather than apprenticeship methods is apparent. On the eve of the outbreak of the Second World War Miss Carter had put forward every one of the new educational principles which, as will be seen later, have been utilised in the current Glasgow experiment.

The nineteen thirties were remarkable for the formulation of new and advanced ideas on nursing education on both sides of the Atlantic. Indeed, thirty years later the profession is still content to base its experiments upon this earlier philosophy. The considerable time lag between the conception and execution of such new principles was, however, not entirely attributable to professional apathy, as the Second World War made even heavier demands on nursing all over the world than the First one had done, and for the greater part of one decade all attempt at improvement of training had to be abandoned everywhere.

It was certainly remarkable that, in such critical times, any consideration could be given to professional problems. The establishment of the Rushcliffe Committee to make recommendations on the salary scales for nurses in 1941 was undoubtedly due to the acute shortage of personnel caused by the War; [1] but the publication of the findings of the Horder Committee on Nursing Education and Training in December, 1943 showed once again how

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1. The recommendation to establish a Committee to revise the salary structure of the nursing profession was first made in the Athlone Interim Report which was published in 1938.

The Rushcliffe Committee: The First and Second Reports of the Nurses' Salaries Committee, London, 1943.

widespread was the demand for the improvement of nursing education, which even the exigencies of war had not dampened.[1] This Report was all the more significant, as it represented the findings of an experienced group of doctors, nurses and educators who could present to the Royal College of Nursing their findings in the name of the profession as a whole.

Two short extracts from this Report indicate that the shortcomings previously identified by Dr. Balme and Miss Carter were still regarded as the main setback to the advancement of nursing education.

> "It is obvious that the first essential in the establishment of true nursing education is the clear separation between the training of nurses and the obligation to provide nursing services for hospital patients. At present nurses themselves are aware of the conflict of loyalties". 2....

> "While the student nurse must be regarded as a component part of the hospital personnel in order that she should cultivate a sense of responsibility, her status as a student should be fully recognised by the trained nursing staff, the medical staff and the governing body of the hospital, and her work should be regulated accordingly". 3

With an eminent doctor as chairman of this Committee it is especially noteworthy that the following claim was made on behalf of the nursing profession in this Report:

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1. The Nursing Reconstruction Committee of the Royal College of Nursing,
   Section I, The Assistant Nurse, August 1942.
   Section II, The Report on Education and Training
   Section III, The Report on Recruitment 1943
   Section IV, The Social and Economic Condition of the Nurse, December, 1949.
2. ibidem, Section II p. 7.
3. ibidem, Section II p. 8.

> "In the Committee's view, Nursing is not merely an item on the nation's medical service, but a profession parallel to that of Medicine, occupying an appointed and increasingly important place in the national plan for health". 1

But although the War did not prevent the formulation of principles and recommendations, it certainly retarded professional advancement in nursing at a practical level. The great additional demand for nurses of all types led to the abandonment of the General Nursing Council entrance qualification and test for student nurses, which had been established in 1937, and which despite repeated requests to the Ministry of Health and Department of Health for Scotland since the end of the war, has not yet been reinstated. [2]

There was no doubt, however, that by 1945 the nursing resources and personnel of all combatant nations were at a very low level; and in addition it soon became apparent that the War had brought about a considerable development in the advance of medical science and techniques. Inevitably, therefore, the nurses found themselves everywhere confronted by the same problems which had faced the profession in the 'thirties' of insufficient, inadequately trained personnel. In one respect the difficulties arising after the Second World War were even greater in so far as

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1. The Nursing Reconstruction Committee of the Royal College of Nursing, Section II p. 11.

2. Permission has now been granted for a re-imposition of an educational entrance standard for student nurses to come into operation on 1.7.1962 in England and Wales - Nurses (Amendment) Rules, Approval Instrument, 1960.

people everywhere were becoming increasingly aware of the greater facilities which could not be provided by preventive and curative medicine. Reform was, therefore, even more acutely needed than before 1939.

Once again it was in North America that the new ideas in nursing education received most consideration and the lead given in experimentation. The main objective of the profession was identified once more as the need to break with the old apprentice-:ship system of nursing education by which the individual hospital acquired so much of its service requirements from the probationer nurse in training. Nursing leaders were unanimous in agreeing that the education of trainees would never be improved until the school of nursing controlled the curriculum solely in relation to the students' requirements, irrespective of the service needs of the hospitals. The implication that this would necessarily produce a smaller number of professional nurses and require larger staffs of assistant and auxiliary personnel to complement the former group was also officially recognised.[1]

The similarity between the arguments used in America in this post-war decade with those of the pre-war era is striking. Dr. Margaret Bridgman expressed clearly the main problem which still confronted the profession:

> "The underlying conflict has been between the necessity for improving nursing education to equip personnel for increasingly exacting and diversified functions, and the necessity for maintaining and increasing current nursing services and keeping costs down in hospitals, with the

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1. Study Group on Basic Nursing Curriculum in Europe, W.H.O. Geneva, 1956, pp. 2, 13 and 14.

> full responsibility resting with the hospitals. This conflict between two equally legitimate interests has been the fundamental reason for the persistent opposition to educational improvements". 1

Another treatise on the same subject by Dr. Brown also recognised the lack of proper professional education for nurses:

> "By no conceivable stretch of the imagination can the education provided in the vast majority of the some 1,250 schools (of nursing) be conceived as of professional education. In spite of improvements that have been made in most schools over the years, it remains apprenticeship training". 2

Another important fact-finding report published in 1950 entitled 'Nursing Schools at the Mid-Century' stated that 75 per cent. of the hospital schools of nursing still had no separate budget.[3]

There is evidence in Great Britain too that this same problem was fully understood to be the central one preventing progress in the field of nursing education.

In 1946 a Working Party was established by the Ministry of Health, Department of Health for Scotland and the Ministry of Labour and National Service to consider among other things "what is the proper task of a nurse and what training is required to equip her for that task". In the Report published in 1947 the Working Party recommended that:

> "The cost of training (student nurses) should be dealt with entirely separately from the general maintenance expenditure of the hospitals in which training is given. Without question the present financial dependence of nursing schools upon the finances of the hospitals to

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1. M. Bridgman - Collegiate Education for Nursing, p. 43
2. E.L. Brown - Nursing for the Future, p. 48
3. Margaret West and Christy Hawkins - Nursing Schools at the Mid-Century, National Committee for the Improvement of Nursing Service, New York, 1950, Ch. VIII, p.6.

> which they are attached nullified any serious attempt to improve the training of nurses". 1

In this same year support for this idea was publicised in the Lancet:

> "The inauguration of the National Health Service offers a chance of separating the finance of the nurses' training schools from the finance of the hospitals..... If nursing is indeed a profession does it not stand to reason that the nurses' training school, like the medical school, draw its money, in part at least, from educational funds rather than from moneys voted for the relief of the sick?". 2

A few years after this the same sentiment was expressed yet again by nursing leaders in Europe at a World Health Organisation Expert Committee on nursing education. In their report it was stated that:

> "A major difficulty in the way of improvement in nursing education at present lies in the fact that the majority of these nursing schools in nearly all countries are hospital schools in which the school has not obtained control of the student's time, on which the so-called nursing student is in reality, an employee or apprentice". 3

The demand for independent schools of nursing which was so insistent and internationally supported was indeed a case of "innovation being merely a return to tradition"; for although seemingly new it was in reality a return to the original type of nursing education advocated by Florence Nightingale in 1860.

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1. Report of the Working Party on the Recruitment of Nurses, London, 1947, p. 54.

2. Lancet - 8.2.47., p. 227

3. W.H.O. Study Group of Basic Nursing Curriculum in Europe, p. 9.

CHAPTER II

## The Development of Two New Methods of Basic Nursing Education

The unanimity of purpose which had led to the insistent demand for the reform of nursing education did not equally characterise the method of accomplishing this objective. Such difference of opinion as to the means to be employed may even prove an advantage, since it has enabled progress to be made along two separate lines, both of which can again be traced back to recommendations made before the Second World War. One experimental method of training has developed and is still developing along the lines suggested in Professor Weir's Canadian Survey of Nursing Education published in 1932, which considered that the independent school of nursing education must be established within a university, where full student status and academic life could be enjoyed. The curriculum could then be broadened so as to include the sociological as well as the basic technical services required in nursing, and, if necessary, the course would last four or five years. The return in service was not an immediate concern in such schools, but it was anticipated that from these more highly selected and educated students there would emerge in due time the fully qualified professional nurse, equipped to play a full role in all the new methods of nursing care required of her.

There were two principal motives behind this particular school of thought. Firstly, it was obvious that nurses both in the United States and Canada were aware of their dangerous isolation from the higher centres of learning. Every other service profession was becoming associated with university teaching, even if only for one group of its employees, and the nurses could not be blamed for seeing that what applied to engineering trainees applied equally to them. The close analogy between the professional needs of these two groups was pointed out by Dr. Brown in 'Nursing for the Future'.[1] Both Dr. Bridgman and Dr. Brown in their respective books also argued powerfully for the need to give students a good professional education because of the new responsibilities for nursing care and treatment being passed on to them by the doctors in an ever-increasing field of specialisation.[2]

Secondly, the American nurses realised that in this way they could break the connection between the service requirements of the hospital and the educational needs of the students. If they were attached to the university campus along with all other students separate arrangements would then have to be made with certain hospitals for the students to gain their practical experience as and when required by their syllabus, but in doing so they would not form part of the hospital staff.

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1. E.L. Brown - Nursing for the Future, pp. 63 and 64.
2. M. Bridgman - Collegiate Education for Nursing, pp. 27-38
   E.L. Brown - Nursing for the Future, pp. 26-41.

These years after the War certainly witnessed a much fuller development of university education for student nurses in the United States. By 1959 it was reported that 13.7 per cent. of the nursing students were preparing for a basic degree in their nursing school, although at this time more than 85 per cent. of the student nurses were still being trained in hospitals offering the predominantly apprenticeship type of course.[1] In Canada too there was during these years a similar demand for university nursing education, and by 1956 in seven provinces university schools of nursing had been established. In this same year Miss E.K. Russell, who had been appointed to report on the progress of nursing education in New Brunswick, advocated that a School of Nursing be set up in the University of Fredericton for the establishment of a degree course which "would prepare the students for the nurse registration examinations".[2]

In Europe, however, there has not so far been the same urge to develop this academic pattern of nursing education except in a few centres, probably because the traditional apprenticeship method of training has deeper roots in the religious foundations than it ever acquired in the United States or Canada. In a few of the university centres of Europe there are to be found schools of nursing closely associated with but not completely integrated into the academic setting, and none of them so far permitting degree-

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1. M. Montag - Community College Education for Nursing, New York, 1959, p. 15.

2. Edith K. Russell - Nursing Education in New Brunswick, Canada, 1956, p. 60.

-granting programmes. Two of these schools are in Belgium, the older of them being L'École universitaire Sainte Elizabeth pour Infirmières et Accoucheuses, which was founded at the Catholic University of Louvain in 1928, and L'École d'Infirmières Hôpital Saint Pierre associated with the University of Brussels began in 1936. Another school which is closely supported by a university clinic is the Escola Técnica de Enfermeiras which was established in Lisbon in 1940. More recently in Germany in 1953 the University of Heidelberg became closely associated with a new three-year course in basic nursing education. The school is based on the university campus, and the students, all of high educational ability, are taught by university lecturers and enjoy privileges in common with all other students of this university. But even here in this carefully planned and integrated programme of theoretical and practical instruction the course is not entirely controlled by the university, nor is a degree granted at its completion.

Outside Europe there is more evidence of plans not only to associate basic nursing courses with university teaching but of the organisation of courses leading to a university degree in nursing. One such four-year course leading to a B.Sc. was established in Alexandria University in 1954; [1] and in February, 1956 students were admitted to Pretoria University to take a four

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1. Nursing Times, 21.11.53, p. 1182.

and a half year course leading to a B.A. or B.Sc. degree in nursing.[1] It has also been announced recently that a degree and diploma course in basic nursing will be established within a year in a New Zealand University, and twelve students will be admitted to this course annually.[2]

Meanwhile, in Great Britain the closer association of the nursing profession with the universities has been gaining some support, although it is still hesitant. The official policy line of the profession, as indicated in 'Observations and Objectives' in 1956[3] for example, remains basically the same as the one adopted by the Lancet Commission in 1932, when it was recommended that university education should be reserved for post-graduate students, such as the nurse-tutors and Diploma of Nursing candidates. But in 1956 a Nursing Studies Unit was established in the Arts Faculty of Edinburgh University, and in October, 1960 is introducing a five-year course which will enable the students to study for an Arts or Science degree and also to take the Final State Examination of the General Nursing Council. Whilst the student will concentrate on the academic syllabus in the first three years and on the nursing syllabus in the last two years, the nursing curriculum, both theoretical and practical, will be integrated into the whole five year programme.

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1. South African Journal of Nursing, April, 1956, p. 20

2. Nursing Mirror, 22.4.60.

3. Royal College of Nursing, Observations and Objectives, A Statement of Nursing Policy, London, 1956.

Manchester University in September, 1959 also started a four-year diploma course in community nursing for student nurses; but in this instance the main part of the nursing syllabus will be covered in the first two years and social and community health education in the last two. For both these courses students must have the eniversity entrance qualifications required of entrants to other courses in their respective faculties.

A common factor in all these basic nursing courses bringing the profession closer to the universities has been the increase in their length, some of them now lasting for as long as five or six years, according to the breadth of the curriculum and the amount of practical nursing stipulated.

The second approach to the solution of the post-war crisis in nursing education has, however, progressed along different lines, and is the development with which this study is specifically concerned. Whereas the main impetus for university education has come from the United States this other development has emanated from Canada. It emphasises again that the lead in these various new methods of nursing education has come in recent years from the New World, where there has been a willingness not only to study and plan but to experiment. The specific contribution of the Canadians has been the development of a shortened course of training for student nurses based on the premise that if the students' time is used solely for educational purposes the course can be completed in two years instead of three.

The philosophy behind the Canadian experiments was to some extent similar to that which motivated closer association with universities in the United States. The need for the economic independence of the nursing school, so that the students' time is controlled by the educators, was again of paramount importance. The shortened course has been looked upon also as a method of increasing the numbers of professional nurses available not only by reducing the length of the course, but by making nursing more congenial to really good recruits. The Canadians considered that it was possible to achieve these objectives by basing the professional training of nurses on a School of Nursing, with access to the hospitals as required. This Canadian line of thought was, in fact, similar to that which had previously been suggested by Dr. Balme in his treatise on nursing education published in 1937.

The Canadian two-year courses, however, varied considerably in their purpose from the American University models in so far as the principal objective was to produce a well-educated registered nurse as quickly as possible, whereas the Americans were basically concerned with the development of the academic aspect of nursing education rather than in the immediate service return to the profession.

There are two Canadian experiments of note. The first experiment commenced in the Metropolitan Hospital, Windsor, Ontario in January 1948, and the second at the Atkinson School of

the Toronto Western Hospital in 1950. Both these courses have been expertly evaluated, and have formed a useful source of information for the planners of similar courses, especially the British experiment which was established in Glasgow in 1956. It is, incidentally, interesting to observe that the principal recommendation of the Working Party Report on the Recruitment and Training of Nurses published in London in 1947, which coincided with the first of these Canadian experiments, was that an experimental two-year course for student nurses should be carried out.[1] The official objectives of both the Canadian shortened courses were to develop student status, to carry through an integrated programme of theory and practice, to disregard the service needs of the hospital beyond the practical experience required by the students, to increase recruitment and reduce wastage.

The first experiment in Windsor, Ontario, was established directly as the result of the recommendation made by the Canadian Nurses Association in 1946.[2] During the four years this experiment was in progress only ninety-six students undertook the course - thirteen, twenty-four, twenty-four and thirty-five being enrolled annually between January, 1948 and September, 1952 respectively. Educationally they were an above average group

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1. The Report of the Working Party on the Recruitment and Training of Nurses, 1947, Chapter IX, p. 49

2. Canadian Nurses' Association Toronto Convention, July, 1946 passed a resolution approving the establishment of a shortened course in nurse training.

when compared with other Canadian schools of nursing,[1] and their age range was a little higher than that of the other control schools included in the evaluation.[2]

The course itself was carefully planned ensuring integration of theory and practice over the two-year period, without any reference to the service needs of the hospital. A reduced number of hours were spent on the wards by the experimental students who gave direct nursing care to patients under the close supervision of clinical instructors. In fact as estimates in the evaluation report show, the control students spent almost twice as many hours on the wards in three years as did the experimental students in two years.[3] On the other hand, both the experimental and control students had a similar amount of theoretical instruction (if hours for personal study are excluded), although this meant a much more concentrated syllabus for the Windsor School.[4] An interesting point made in the assessment was, however, that whereas there was no such thing as an 'average' range of clinical experience for the control nurses, since the length of time spent in various wards and departments was dependent on service needs, there was almost exact uniformity of clinical

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1. Three other control schools were used in this evaluation study, two of them were also in Ontario and the other "control" school was in Saskatchewan.

2. Dr. A.R. Lord - Report of the Evaluation of the Metropolitan School of Nursing, Windsor, Ontario, Canadian Nurses' Association, 1952, p. 18.

3. ibidem, p. 35

4. ibidem, p. 31

experience available to the Windsor students.[1] This evaluation study was only concerned with the two years of the course, as the nurses, when qualified, were all free to practise as qualified personnel wherever they wished after this time.

The results of this experiment were undoubtedly most encouraging as is clearly indicated in Dr. Lord's report. The number of applications increased over the four-year period and the number of students who successfully graduated also indicated a noticeable reduction in wastage when compared with the control groups in the other three schools.[2] Health records in the experimental school showed very marked improvement, probably due to the shorter working hours. But the most objective test of the success of the new course was the performance of the students in the state examinations. Two of the control schools were also in Ontario and therefore took the same examinations. The Windsor School nurses achieved much better results in these examinations with an overall average mark in all subjects of 76.4 as against an average of 70.7 and 69.7 in the two control schools.[3] Whether this success was due to the greater intellectual ability of the experimental students rather than their new course was not, however, indicated.

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1. Dr. A.R. Lord - Report of the Evaluation of the Metropolitan School of Nursing, Windsor, Ontario, 1952, p. 18.

2. In his evaluation of the Windsor, Ontario Experiment Dr. Lord recorded a wastage rate of 9.4 per cent in the Experimental School as against 24.4, 21.7 and 30.7 per cent. in the three control schools. Report p. 18.

3. ibidem. p. 31.

Nevertheless such results were undoubtedly encouraging for the new venture, and as the Director of the Windsor School herself indicated the professional nurses associated with it had considered the experiment well worthwhile.[1] It only foundered for lack of financial support, an indication that the community of Windsor, who were asked to take over the cost of running the school from the Canadian Red Cross, still did not appreciate the fact that nursing education must be as costly as any other form of education.

The professional success achieved at Windsor was directly responsible for the establishment of the second, almost identical, experiment at the Atkinson School of the Toronto Western Hospital. As already indicated, the underlying objectives of this course were similar to those of the Windsor School, and again the school was to be financially independent of the main hospital budget. Once more the same professional principles were used of careful student selection, full student status, shorter hours with no night duty and a planned integration of theory and practice throughout. One difference of special interest in this second experiment, however, was that, although the students could complete their final examinations at the end of two years, they had to spend the third year as internes in their parent hospital before being permitted to practise independently as professional nurses.

The official evaluation of this course, undertaken by Dr. Stewart Wallace, was as encouraging in the assessment of the

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1. The Metropolitan School of Nursing, N. Fidler, The Canadian Nurse, Volume 48, No. 11. November, 1952.

experimental students' performance as had been Dr. Lord's. Both the evaluators were agreed that if the school has full control of the students' time and education then it is possible, with suitable candidates, to cover the whole curriculum in two years instead of three.[1] This Toronto experiment also showed an encouraging increase in suitable applications for the course, a significant wastage decrease,[2] as well as considerably better performances in the state examinations between the 'new' and the 'old' students of the Toronto Western Hospital who, in 1952, actually took the same qualifying examination.[3] In every subject of the examination the Atkinson School students had a higher incidence of grades A and B and a lower incidence of C.D. and F. grades compared with the average students in the four other control schools taking the same state examinations in 1952, 1953 and 1954.[4]

Some attempt was also made to assess their development in the interne year by seeking the opinions of doctors and nursing supervisors, but even so it was not possible to gain any very definite impression of their ability at this stage. Dr. Wallace simply states that he heard

> "the opinion expressed that internes from Toronto Western Hospital were in no way inferior to the registered nurses who had graduated from other hospitals". 5

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1. Dr. A.R. Lord - Report of the Evaluation of the Metropolitan School of Nursing, Windsor, Ontario, p. 54; and Report on the Experiment in Nursing Education of the Atkinson School of Nursing, Toronto Western Hospital, Dr. W. Wallace, p. 14
2. Dr. W. Wallace - Report on the Experiment in Nursing Education of the Atkinson School of Nursing, Toronto Western Hospital p.7.
3. Dr. W. Wallace - Report on the Experiment in Nursing Education of the Atkinson School of Nursing, Toronto Western Hospital, p. 10.
4. ibidem, p. 12
5. ibidem, p. 14

The success of these two Canadian experiments has had an influence most of all in Great Britain. Before, however, discussing the course of events which led to the establishment of the British experiment there are other adaptations of the Canadian schemes worth consideration.

A similar type of experiment was carried out in the Massachusetts General Hospital, Boston, in September, 1948 for much the same reason.[1] This basic programme lasted for twenty-eight months when the state examinations were taken, and a further eight months interneship followed, since the State of Massachussets requires a three-year period of training before the R.N. diploma can be granted. Once again the results of this new type of course appeared to be encouraging, as the experimental nurses more than exceeded the average performance in the graduate nurse qualifying examinations; their work as internes appeared equally promising, whilst applications increased and wastage was reduced to 0.8 per cent.[2]

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1. "We had three major concerns. First, the student time schedule needed modification. During the war years, a long hour schedule for all professional workers, professional students, and lay personnel seemed unavoidable. The war years and their demands were now well behind us.

   Secondly, the entire curriculum needed revision. There were many new trends in the social and medical sciences, and the pre-war nursing curriculum was steadily growing inadequate.

   And finally, the student assignments required practice, in many instances, beyond the point necessary for a safe and reasonably skilled performance".

   We study our Basic Programme, Ruth Sleeper, The American Journal of Nursing, November, 1951, Volume 51, No.11, p. 683

2. We Study our Basic Programme, R. Sleeper, R.N., The American Journal of Nursing, November, 1951, Volume 51, No. 11 p. 683

Another similar project is to be found in Finland, one of the European countries most ravaged by war in recent years, where the nursing services have been wholly re-organised with financial assistance from the West. In 1956 the Laakentohallitus (State Medical Board) of Finland decided that a basic nursing course of two and a half years' duration should be established in the existing eight nursing schools throughout the country, and that eventually twenty such schools should provide professional nurses for the whole country. Simultaneously they cut the customary length of the student course from three to two and a half years, and the similarity of the new shortened course to the Canadian experiments is striking. The subjects covered in the Finnish curriculum are almost identical, except for a longer time being devoted to public health nursing. Apart from these understandable differences the Finns have utilised the Canadian pattern, giving a wider student status, integrated theory and practice, patient care on wards supervised by clinical instructors, a shorter working week with no night duty required. Educationally the Finnish students were at least equal to the Canadians. Not only had they nearly all matriculated, but even out in such a small town as Lappeenranta on the Russian border a psychologist flew from Helsinki periodically to carry out a battery of intelligence and aptitude tests for candidates.

There has, as yet, been no official evaluation of the new pattern of training adopted in the Finnish schools of nursing, but during a visit in 1958 the writer was informed that the first

results of the state examinations were promising, that the wastage was as low as 8 to 10 per cent.,[1] a considerable reduction on earlier figures. In Finland too the students completed the theoretical part of their course at the end of two years, but this was followed by an interne year in an acting staff nurse role, under the guidance of the School of Nursing. The only informal appraisal available so far has been that these nurses in their third year are as efficient and capable as the other nurses were under the old system.[2]

Before leaving the discussion about these two-year courses it is interesting to note that in September, 1960 yet another of these shortened courses is to be undertaken in Canada in the Province of Ontario. The decision to establish this course, which was taken in 1957, has been considerably influenced by the earlier success of the Windsor experiment. The immediate reason for the establishment of this new school of nursing is the commemoration of the centenary of the Nightingale School at St. Thomas's Hospital, London, and the official objective of the course recommends:

> "That the basic professional education for nursing be a two-year programme which qualifies the graduate for a diploma and registration". 3

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1. Finnish paper by Sirke Helle, Director of Nursing, State Medical Board (unpublished).

2. ibidem.

3. The details of this new course are given in the International Nursing Review, August, 1960 (pp. 39-40).

The further use of this particular pattern of training seemingly indicates that the earlier successful verdicts on the outcome of the shortened courses have been substantiated during the intervening years.

Yet another development of the two-year pattern of educating student nurses which has taken place in the United States must also be mentioned. Between 1952 and 1956 seven Junior Community Colleges and one hospital school of nursing each undertook, under the guidance of its own 'faculty', to educate student nurses for the R.N. qualification in two years instead of three. This project came about because

> "the present system of educating nurses has failed to produce the requisite quality and quantity of nurses to meet the demand". 1

An important objective of these courses was, therefore, to improve the supply of trained nurses, although as in the other two-year courses already mentioned this service return was to be met by the College having complete control of the students' curriculum and 'laboratory' or ward experience, as it was designated.

The other major difference in these American Community College courses was that they openly specified that they were intended to produce a semi-professional nurse as opposed to a professional nurse, who would be taking at least a four-year course in nursing education at the university. The semi-professional nurse was to be a skilled bedside practitioner, who although technically competent

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1. Mildred L. Montag - New Community College Education for Nursing, New York, 1959, p. 15.

to carry out all treatments would do so under the direction of a more highly qualified nurse. In the earlier Canadian experiments the official reason for their establishment had been

> "to determine whether a professional nurse can be prepared adequately in less than three years". [1]

Although more comprehensive university degree courses were in progress in Canada at this time the same official limitation was not placed upon the two-year graduates, and the American concept of the professional and semi-professional nurse, in addition to the nursing aides, is a new one.

Despite a slightly different raison d'etre the official evaluation of these Community College experiments was also encouraging. These students performed quite as well as the other three-year hospital students in the R.N. examinations conducted by the State Board Test Pool; [2] and their wastage was about the same. By making use of these two-year colleges, which provide a great deal of the technical education in the United States, it was estimated that 20 per cent. more nursing students were enrolled through these media than would otherwise have been possible.[3] Another important finding relates to the standard of competence achieved by these pilot programme graduates after completing their two-year course. This estimation was made after many interviews and ratings of their ability as post-graduate nurses had been made

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1. Canadian Nurses' Association's Statements of Policies, April, 1951, quoted in Dr. Lord's Windsor Report, p. 7.
2. M.L. Montag- Community College Education for Nursing, p. 169
3. ibidem, p. 131

by head nurses; and apparently their performance as third year internes working in hospitals was as satisfactory as that of the three-year graduate nurses. Eighty-one per cent. of these two-year graduates were still nursing a year after completing their college programme.

It has become evident from this discussion that the nursing profession has been and remains acutely aware of certain weaknesses in the currently employed methods of basic nursing education. This dissatisfaction has led to vigorous experimentation firstly in the New World, but more recently during the past decade greater interest in such ideas has spread further afield into certain parts of Europe and other continents as well. The other important point which has emerged is that so far the nursing profession appears divided as to the best remedies for its educational problems; although it may well be that it will be increasingly appreciated that more than one type of training is both necessary and desirable.

CHAPTER III

## The Demand for the Improvement of Basic Nursing Education in Britain

Although experimentation in basic nursing education took place more rapidly in North America, and one or two other countries, after the war, the need for similar development was equally apparent to the nursing profession in Great Britain at this time. The studies and recommendations of certain wartime Committees, such as the Rushcliffe and Horder groups, have already been mentioned; but it was not until January 1946, when the joint Working Party of the Ministry of Health, the Department of Health for Scotland and the Ministry of Labour and National Service was established with wide terms of reference to - "survey the whole field of the recruitment and training of nurses of all types" that real progress could be anticipated. The Working Party of experts were also advised - "that the impending establishment of a National Health Service would undoubtedly increase the demand for nurses even above the present level";[1] and in its Report issued in 1947 the Working Party confirmed that on account of the demands made by the War and increasing services to the community the supply of qualified nursing personnel had considerably deteriorated between 1938 and 1945.[2]

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1. Report of the Working Party on the Recruitment and Training of Nurses, 1947, Introduction, p. iii

2. ibidem, pp. 5 - 6.

The establishment of this expert Committee was the first step in the long protracted series of investigations between 1946 and 1956, which ultimately led to the establishment of the first official British experiment in a new method of basic nursing education in Glasgow in 1956. The official terms of reference of the Working Party were to consider:

> "What is the proper task of a nurse; what training is required to enquip her for her task; what annual intake is needed and how can it be obtained; from what group of the population should recruitment be made; and lastly, how can wastage during training be minimised?"[1]

The unsatisfactory situation in relation to student nurse training revealed by this enquiry was depressing but not altogether surprising. The survey showed that the loss of students from each annual intake between the years 1937 and 1943 was 35 per cent. in the voluntary hospitals and 43 per cent. in the municipal hospitals; and the wastage of students from general training schools seemed to average about 36 or 37 per cent. since 1940.[2] The causes of wastage were carefully considered by the Working Party. Interviews were conducted with students who had recently discontinued their course, and from this data it was stated that:

> "The conclusion emerges clearly from this analysis that the type of discipline which pervades the training schools to-day is unquestionably the most important cause of wastage". 3

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1. Report of the Working Party on the Recruitment and Training of Nurses, 1947 - Introduction, p. iii

2. The Report of the Working Party on the Recruitment and Training of Nurses, 1947 - p. 28.

3. ibidem, p. 41.

Further opinions were sought from hospital staffs on the whole question of hospital discipline and the dogma of 'self-abnegation', which fully confirmed the views of the ex-students. In fact so strongly did the Working Party feel about these antiquated training conditions that they recommended:

i) Nurses in training must no longer be regarded as junior employees subject to an out-moded system of discipline.

ii) A new selection procedure for student nurses.

iii) A method of selection for appointment to senior posts which will help to secure that only those are appointed who possess the capacity for developing satisfactory human relationships.

iv) Steps must be taken to improve the quality and quantity of diet and to provide suitable accommodation and other amenities.

v) The training day must be reduced in span so that it approximates as closely as is practicable to that of a 'normal' working day. This involves the introduction of a three shift system. 1

The syllabus too came in for criticism from the Working Party who noted from their students that:

> "There is variation from school to school in the content, length and efficiency of training, and the careers of individual students vary greatly in the stages of training through which they pass..... In a large number of hospitals formal teaching in the wards is negligible. Many student nurses are taught practically nothing by their ward sisters". 2

Although the Working Party did not find evidence of high numbers of students stating that they found the course too advanced

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1. The Report of the Working Party on the Recruitment and Training of Nurses, 1947, p. 42.

2. ibidem, p. 43.

theoretically, they did point out that one quarter of hospital nursing staffs fall within the lowest 30 per cent. of the population intellectually.

During the course of this study the exact work of thirty- six student nurses was observed and further evidence brought to light condemning the existing method of training:

> "It has to be recognised that at present the student nurse is almost invariably a 'student' in name only. First and foremost she is an employee of the hospital with which she signs a contract, and her training is largely incidental to her daily duties". 1

It was also shown that during her three-year course the student nurse is a general hospital spent approximately 77 per cent. of her time nursing, and the other 23 per cent. was taken up by domestic duties.[2]

Not only did the Working Party make recommendations for the improvement of the student nurses' training but they laid down a suggested new and progressive form of education incorporating their proposals. Specifically this was that student nurses should all take one basic course of training lasting two years:

> "The first eighteen months would be devoted to fundamentals common to all fields of nursing and the remaining six months to concentrated training in a particular field".[3]

At the end of the two years they could achieve state registration, and then spend a third year of interneship as acting staff nurses under supervision before being granted full registration.

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1. The Report of the Working Party on the Recruitment and training of Nurses, 1947, p. 45

2. ibidem, p. 46

3. ibidem, p. 49.

It was also recommended that care should be given to the selection of candidates of suitable personal and intellectual calibre, that the theory and practice of nursing should be integrated over the whole two student years giving the school of nursing full control of the students' time, and the use of clinical instructors to supervise the teaching of practical techniques.[1] Even more important was the recommendation that:

> "The cost of training should be dealt with entirely separately from the general maintenance expenditure of the hospitals in which training is given". 2

It certainly appears more than a coincidence that, working quite independently and on a national basis, this group of experts found the same defects in the student nurses' education as had their colleagues elsewhere at approximately the same time. Their findings and recommendations were probably expressed in simpler terms but that is unimportant. In North America and elsewhere, as already noted, there was a growing body of opinion proclaiming that the time had come to give the same care and attention to the education of the student nurse as to trainees in other professions, if there were to be sufficient numbers of well-educated nurses to supply the new demands being placed on them all over the world. Whereas, however, Canadian experimentation followed quite speedily on recommendations of the Canadian Nursing Association 'the mills of God grind slowly' in the Old World, and further evidence was needed before experimentation took place in Britain.

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1. The Report of the Working Party on the Recruitment and Training of Nurses, 1947, p. 54.
2. ibidem, p. 55.

It was unlikely that such a forthright document as the Working Party Report would cause no ripples on the pond. These came from two different directions. Firstly, there were the responses of leading nurses, doctors and even politicians[1] to such an emphatic document and, secondly there were the more concrete reactions epitomised in further practical investigations which took place in the succeeding years.

As far as official nursing opinion was concerned the General Nursing Council was a little cautious in its reception of some of the new ideas, especially the considerable curtailment in the student nurses' practical nursing experience which would be inevitable if the shortened course of training was adopted.

> "Towards most of the proposals (the General Nursing Council's) attitude is tinged with reserve. Two years they held to be inadequate even for a basic training, for it would allow the student nurse to spend only thirty hours a week for fifty-one weeks on nursing practice. Further the elimination of repetitive duties on which the proposed reduced training is based would rob the student nurse "not only of the ability to nurse but satisfaction in nursing". The Council also disapprove of the proposal that a licence to practise should be issued after two years' training (followed by state registration) and a third year under supervision". 2

Another set of comments was supplied in November, 1947 by King Edward's Hospital Fund for London, who particularly questioned the meaning of 'student' status, which they considered would be

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1. See address given by Mr. Aneurin Bevan, Minister of Health, to nurses at Middlesex Hospital, London on 24.10.1947, and House of Lords debate on Shortage of Nurses on 9.11.47.

2. Observation submitted to Ministry of Health by General Nursing Council on Ministry's Working Party Report on the Training and Recruitment of Nurses as summarised in Lancet Annotation 12.6.48 - p. 916.

a disadvantageous concept if it followed the American pattern too closely and took the nurse from the bedside. They also did not agree that a two-year course would make available a larger number of trained nurses in the hospitals, as they would then tend to leave at the end of the second instead of the third year.[1] The doctors too showed an understandable interest in this debate, as their various contribution to the Lancet and British Medical Journal at this time indicate.[2]

The first practical result of the Working Party Report, however, was soon forthcoming, when in 1949 an Act of Parliament known as the Nurses' Act 1949 (England and Wales) and the Nurses' (Scotland) Act, 1949, both included a clause enabling the respective General Nursing Councils to permit experimental courses in nursing education to be undertaken.[3]

> "If the Council are of opinion that it would be advantageous that a trial should be made of a scheme of training and examination to be undergone and passed by persons as a condition of their admission to the register, or as the case may be, the roll, being training and examinations differing from, but appearing to the Council to be no less efficient than, the training and examinations for the time being required by rules made by the Council to be so under-:gone and passed, they may, with the approval of the Secretary of State by resolution adopt the scheme for such

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1. Comment on the Report of the Working Party on the Recruit-:ment and Training of Nurses submitted to Ministry of Health, King Edward's Hospital Fund for London, November, 1947 - pp. 8 - 9

2. The Future of Nursing, British Medical Journal, 13.9.47 - pp. 422-423. The Recruitment and Training of Nurses (An Annotation on the Working Party Report by the Medical Women's Federation). British Medical Journal, 29.5.48, p. 1057.
The Recruitment and Training of Nurses, Lancet, 13.9.47, p. 401.

3. Nurses' (Scotland) Act, 1949, 12, 13 and 14 Geo. VI, Chapter 95.

> period as may be specified in the resolution and in relation to such institutions situated in such area for which a regional nurse training Committee is constituted under this Act as may be so specified, being institutions appearing to the Council to be suitable for the purpose of carrying out the scheme therein". 1

Exactly the same permissive clause was published in the Nurses' (1949) Act of England and Wales, Geo. VI, 12 amd 13, Chapter, 73. This permission was again reiterated in the Nurses' (Scotland) Acts of 1951 and 1957. This new right need not and, in fact, has not been used solely for the development of shortened courses of training, but the important right to experiment, so long as existing standards were maintained, had been granted.

Two other equally important clauses in these Acts strengthened the position of the General Nursing Councils by the establishment of Area Nurse Training Committees and Regional Nurse Training Committees in England and Scotland respectively, which were to be expert groups responsible to the General Nursing Councils for the development of student nurse education and experimentation in their areas. The other clause made the education of student nurses a national responsibility controlled by the General Nursing Council, so that this item must be a separate charge on the hospital budget in future. In practice the three-year student nurse has continued to give direct service to the patient in return for her practical experience, but the Nursing Acts of 1949 officially recognised nursing education as a separate item of expenditure for the first time.

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1. Nurses' (Scotland) Act, 1949, 12, 13 and 14, Geo. VI, Chapter 95, Section 4, Clause 2.

In this same year another report was forthcoming in the name of the Royal College of Nursing. This last section of the Report carried out by the Horder Committee on the Social and Economic Conditions of the Nurse undoubtedly showed the influence of the Working Party's findings.[1] This Committee again reiterated the need for a division between nursing service and nursing education, if student status was to become a reality, and the nurse was to be guaranteed a professional training.

> "There is, then, no short and simple definition of student status, especially in relation to the training of a nurse. It certainly does not mean that the student nurse never goes into the ward to do practical nursing, because she would never learn if that were the method of her training. It does, however, mean that while she is doing her training she must carry out those tasks which will build up in her the body of knowledge and expertise which she must acquire, and where there is a choice of two tasks - the one which does not help her even if valuable to the hospital, and the other important to her learning and not to the hospital - she should be given the second of these tasks to do." 2

In true British fashion, however, the principal developments were pragmatic rather than philosophical, and took the form of fresh interest in further research to validate the findings of the Working Party. These further investigations took three forms. Firstly, interesting experiments were carried out in two English hospitals with special selection tests to assess the intelligence and aptitude of student nurses. The two hospitals were St. George's Hospital, London, where the testing of approximately one

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1. Nursing Reconstruction Committee of the Royal College of Nursing , Section IV - The Social and Economic Conditions of the Nurse, 1949.

2. ibidem, p. 10.

hundred and twenty-six students in a pilot study took place in 1949, and some years later similar tests were conducted with a hundred and fifty-nine students in the Royal Devon and Exeter Hospital. The value of such tests had been questioned by the Working Party, who had recommended the use of an interview, one or more intelligence tests and an occupational preference questionnaire.[1] The Working Party also believed that an effective selection technique could reduce the average rate of wastage in nursing from about 50 per cent. to 15 per cent., as such methods had done in other professions.

As a result of these two experiments it was concluded that:

> "At this hospital (St. George's) under present conditions the use of these tests, in addition to the present selection procedure, would increase the number of satis-:factory nurses selected from 75 per cent. to 94 per cent. The tests would also be useful in hospitals where other conditions obtain". 2

Similarly encouraging results were achieved in the Royal Devon and Exeter Hospital experiment, where it was also considered that the less homogeneous and educated students would make prediction of results all the easier.

> "Some idea of the improvement that the scheme should bring is given by the estimate that if 50 per cent. of applicants are accepted, a present level of 20 per cent. 'unsatisfactory' nurses would be reduced to 6 per cent". 3

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1. The Report of the Working Party on the Recruitment and Training of Nurses, 1947, p. 60.

2. Selection of Student Nurses, Asenath Petrie and M.B. Powell, Nursing Times, 11.3.50., p. 250.

3. Predicting the Successful Nurse, Terence Lee, Nursing Times, 29.4.60., p. 540

The second form of investigation which was carried out in the years following the Working Party Report, and in direct response to the problems it raised, were three local studies on student nurse wastage and the characteristics of successful and unsuccessful students. One of these studies was a straight-forward analysis of the causes of wastage amongst student and pupil assistant nurses, which was undertaken by the hospitals in the East Anglian region between the years 1949 and 1953. This study illustrated that amongst student nurses, and in general, fever and British Tuberculosis Association training schools, educational unsuitability accounted for 21.0 per cent. of the loss, and that this was second only to marriage causing 23.0 per cent. of the wastage. In this investigation it appeared that dislike of the work and discipline and lack of interest in nursing was responsible for only about 17.0 per cent. of the student loss.[1] This last factor was less pronounced, whilst educational unsuitability had become more serious than indicated in the Working Party's Report.

The other two studies were rather more extensive in their objectives if not in the geographical area covered. The first was based on all the Birmingham area hospitals where student nurses were trained and covered the years 1951 to 1954.[2]

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1. Student Nurse Wastage, East Anglia, Nursing Times, 28.8.1954, p. 921.

2. Survey of Entrants to Nurse Training Schools and of Student Nurse Wastage in the Birmingham Region, K.W. Cross and D.L.A. Hall, British Journal of Preventive and Social Medicine, Vol. VIII, 1954.

It was possible from the analysis of this data to compare directly the rate and incidence of wastage in the Working Party and Birmingham Reports; and in the former it was stated that fifty out of every hundred students completed their course, whereas in the latter only forty-one per cent. had done so. Table No. 1 has been developed from some of the data available in these two studies showing the similarity in the rate of wastage during different years of the course.

Table 1 — Distribution of Student Nurse Wastage before the Completion of Training as indicated in the Working Party Report and the Birmingham Wastage Survey

| | Working Party (1947) Report | | | | Birmingham R.H.B. (1954) Report | | |
|---|---|---|---|---|---|---|---|
| | Type of Training School | | | | Type of Training School | | |
| | General | | | | | | |
| Year of Intake | Voluntary | Municipal | Infectious Diseases | Tuberculosis | General | Infectious Diseases | Tuberculosis |
| First | 65.0 | 68.0 | 67.0 | 79.0 | 67.7 | 76.9 | 72.1 |
| Second | 21.0 | 19.0 | 23.0 | 21.0 | 21.6 | 7.7 | 14.0 |
| Third | 14.0 | 13.0 | 11.0 | - | 6.1 | 15.4 | 13.9 |
| after the third year | - | - | - | - | 4.1 | - | - |
| Total | 100.0 | 100.0 | 100.0* | 100.0 | 100.0 | 100.0 | 100.0 |

*The percentages quoted in this column are given as in the Working Party Report but add up to 101 per cent.

The figures presented in this Table are to be found in the Working Party Report (1947) in Tables D and H of Appendix III and in the Birmingham Survey, opus cit, Table VII, p. 76.

It was apparent, therefore, that the wastage of student nurses had not improved since 1947, and that the highest rate of loss still occurred in the first year of the course.

The last of these regional studies was carried out by the Oxford Regional Hospital Board between 1951 and 1954 to compare the progress of student nurses at four hospitals in the region.[1] The method of analysis used in this study makes close comparison of wastage rates with other studies impossible, but it did reveal that the rate of attrition ranged from 22 to 32 per cent. over the first two years of the course. It was also illustrated that in each of these four hospitals wastage was higher in the first than the second year.[2]

But in both the Birmingham and Oxford studies the principal analysis of data related for the first time to a comparison of the characteristics of successful and unsuccessful students. This constituted a more objective approach to the causes of wastage than had been undertaken hitherto. In the Birmingham survey the educational characteristics relating to the students' age on entry to the course, school leaving age, educational performance in terms of a School Leaving certificate, together with previous nursing experience, were used as the principal criteria, and hospitals of all types were included in the tabulations. As a result the following conclusion was reached in the Report:

> "It will be noticed that in every age category the proportion of successes is considerably higher among students possessing

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1. The Training of Student Nurses, A. Barr, British Journal of Preventive and Social Medicine, Vol. XIII, No. 3.

2. ibidem, p. 150.

> school certificate or matriculation than among those with no qualifications..... The possession of such a qualification appears to be a more important factor than the time spent on education, since the proportion of successful students without qualifications varies little with age of completion of full-time education. These results show that the best type of student from the educational viewpoint is the one who stayed at a secondary or grammar school until sixteen or seventeen years of age and obtained a school certificate".[1]

One other characteristic found to affect the rate of success was where the student had previously obtained a nursing qualification. The performance of this group was significantly better than the students who had no such qualification.

In the Oxford study the success of student nurses was related to a wider range of characteristics, including social class, nationality, season of entry, the value of attending pre-nursing courses, as well as the educational ones. Again it was found that only the educational characteristics revealed notable differences between the two groups, and a more detailed analysis of these factors confirmed that the early school leavers had a low success rate, whereas the students who had attended school longer and had a school leaving certificate did better than the rest.[2]

These two regional studies, had, therefore, confirmed the impression already expressed by other writers that the performance of student nurses, like all other students, is closely associated with educational and intellectual ability.

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1. Survey of Entrants to Nurse Training Schools and of Student Nurse Wastage in the Birmingham Region, K.W. Cross and D.L.A. Hall, British Journal of Preventive and Social Medicine, Vol. VIII, 1954, p. 73.

2. The Training of Student Nurses, A. Barr, British Journal of Preventive and Social Medicine, Vol. XIII, No. 3, pp. 153 -154.

The third contribution to a fuller understanding of the student nurses' role and position during this period was a job analysis of the Work of Nurses in Hospital Wards which was published by the Nuffield Provincial Hospital Trust in 1953. This study was not concerned with the extent and causes of student wastage, but with the duties they have to perform and their organisation on the wards. This investigation was established as a direct result of the comments which the Trust had been invited to make on the Working Party Report, and in those comments it was stated that:

> "Whilst agreeing that the method of approach adopted by the Working Party was a correct one, the Trust felt bound to point out that the principal shortcoming of the report was the absence of the necessary data for an adequate answer to the first of the main questions namely, "What is the proper task of a nurse?". 1

This study covered the duties of all varieties of personnel in the nursing team from the ward sister to the ward maid; and it is not surprising that the activities of the student nurses, who were stated by these investigators to carry out at any time from 68 to 75 per cent. of the nursing service in the wards, should have been given a large share of attention in this report. The three points of outstanding importance relating to the students emerging from this study were firstly that they "were more or less students according to circumstances". 2 In other words, the

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1. The Work of Nurses in Hospital Wards. The Report of a Job Analysis by the Nuffield Provincial Hospitals Trust, 1953, p. 11.

2. ibidem, p. 71.

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student was the person who was regularly called upon to do the work of any other member of the team from the staff nurse to the ward maid, if these groups were undermanned. Secondly, it was clear that the teaching given by ward sisters to the students on the wards was "negligible", even when including time spent by sisters working informally with students giving patient care. Thirdly, the conclusion was reached that:

> "Student nurses were 'students' in name only. Their alleged status is still far from identical with their actual status: indeed, if 'student status' can be said to exist at all at the present time it is only as an attitude of mind on the part of these student nurses themselves". 1

This was a further indictment of the current situation based on factual analysis. It also gave additional validity to the original findings made in the 1947 Report on the unsatisfactory nature of the student nurses' education.

The nature of the job analysis enquiry had been to discover what the nurse actually did, and so recommendations for any defects discovered did not come within its official purview. But in discussing the main issues one or two suggestions were made; it was stated that:

> "So long as student nurses comprise more than half the labour force of the wards it is inevitable that their training needs shall be, on occasion, subordinated to administrative necessity. The only way to ensure that this cannot happen is to evolve a type of ward organisation into which they will fit, but which does not depend on them to the present extent. Otherwise, student status will remain a myth". 2

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1. The Work of Nurses on Hospital Wards, p. 145.

2. ibidem, p. 146.

The Nuffield Job Analysis is of importance in this present study because it forms the bridge in time and ideas between the Working Party Report of 1947 and the Glasgow experimental course which is to be evaluated in the later chapters of this study. The Nuffield Report was made available to the Standing Nursing Advisory Committee of the Scottish Health Services Council in April, 1953, and proved to be the foundation upon which the Glasgow experiment was eventually developed.

These various investigations had revealed that the nature of the problems facing the nursing profession in Britain were similar to those identified elsewhere. The familiar pattern of great service demands interfering with the existing system of education for the student nurse was once again considered to be the major difficulty standing in the path of professional progress.

## SECTION II

### CHAPTER IV

### The Principles and Objectives of the Glasgow Experiment

Although the need for the development of shortened courses of training for student nurses was first officially recommended in the 1947 Working Party Report, it has already been noted that the Nuffield Job Analysis Report was the immediate mainspring for the development of the Glasgow experiment[1]. When this report was presented to the Standing Nursing Advisory Committee of the Scottish Health Services Council in 1953 it was considered worthy of further detailed investigation, and so a Sub-Committee under the Chairmanship of the Matron of Glasgow Royal Infirmary was set up by the Secretary of State for Scotland and the Nuffield Provincial Hospitals Trust to give urgent consideration to the problems raised by the Report.

By 1955 this Sub-Committee had prepared a White Paper[2] giving their opinion as to how the defects in nurse training stressed in the Nuffield Job Analysis could be overcome. In the Sub-Committee's Report it was stated that the principal objective in seeking a solution to the many problems of the nursing

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1. The Work of Nurses in Hospital Wards. Report of a Job Analysis by the Nuffield and Provincial Hospitals Trust, 1953.

2. The Work of Nurses in Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Edinburgh, 1955.

profession must be:

> "To improve the care given to the individual patient and to raise the standard of the hospital service as a whole. The Committee would like to stress this point at the beginning of their Report since inevitably in the later consideration of matters affecting individual groups of the nursing profession and their methods of work it may appear that the emphasis is being thrown on to the question of status, working conditions, training and employment of nurses. It is important to solve these problems if the nursing profession is to continue to recruit to itself a significant proportion of the intelligent young woman in any generation, but they are not an end in themselves. The nursing profession is anxious to improve its status, its training and its contribution to the general administration of hospitals, but the purpose of all this is to render service to the sick which will meet their needs".1

The Committee considered that the main defects in student nurse training illustrated by the Job Analysis could be summarised as follows:-

1. The Student nurse is too readily considered as part of the ward staff.

2. It is difficult to give students adequate teaching on the wards under present conditions.

3. Many of the basic nursing tasks are too repetitive, when considered as part of nurses' training.

4. Some of the wastage during training among student nurses is avoidable.

In order to overcome these inadequacies the Sub-Committee put forward two separate proposals both of which they believed would help to alleviate the situation. The first advocated a shortened

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1. The Work of Nurses in Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Edinburgh, 1955, p.3.

two year course for registration, and the other a three year course with wider experience also leading to registration. Both these proposals were approved by the Standing Nursing Advisory Committee, and then forwarded to the Scottish Health Services Council for the consideration of the Secretary of State for Scotland and the Nuffield Provincial Hospitals Trust. The experimental course with which this study is concerned was developed from the first of these two recommendations, and its terms of reference were to consider:

> "Whether a shortened period of training for general nurses accompanied by improved student status would benefit the hospital service by attracting more students, reducing wastage, securing more satisfactory patient care and increasing the number of trained staff." 1

In this quotation the principal objectives of the new course are epitomised. The direct and principal objective of improving patient care, which must always be the focal point of any progress in the nursing profession, was to be reached indirectly by making the course more congenial and attractive to the student nurse both professionally and personally.

The Sub-Committee had, therefore, to devise a course which would enable them to incorporate the recommendations of the Nuffield Job Analysis Report within their specific terms of reference, and to do this they considered that the experiment must be established on

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1. The Work of Nurses on Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Appendix A.

certain basic principles, the first and most important of which was to ensure that these nurse trainees should have genuine student status: "That is to say that they should not form part of the normal staffing requirements of the hospital", and that "they should only have experience in the wards to the extent which is necessary for their training in the care of patients."[1] The execution of this principle necessitated the school of nursing having control over the student's practical and theoretical timetable, and amounted to a complete break with the usual apprenticeship method of training, as they would only give patient care in conformity with their own need for practical experience and not in answer to the service needs of the hospital.

A second important principle was that "the whole course should provide the opportunity for linking the theory and practice of nursing," and to accomplish this an adequate staff of nurse-tutors and clinical instructors "would be responsible for the supervision of the students for both day and night duty."[2] This principle as much as the first one also depended for its effectiveness on the school of nursing having control of the planning of all aspects of the syllabus. /

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1. The Work of Nurses on Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Appendix A, p. 15.

2. ibidem, Appendix A.

syllabus. Thirdly, it was considered that "because the educational pressure in the two-year course will be greater than in the three-year normal course"[1] the experimental students should have "above average educational qualifications."[2]

The last principle of importance in the experiment was the separate financial provision made for it jointly by the Department of Health for Scotland and the Nuffield Provincial Hospitals Trust. The school, therefore, was economically independent, and although the experimental students worked for considerable periods of time in the wards of Glasgow Royal Infirmary and other hospitals they were regarded as supernumerary to the ward team almost throughout the two years, and staffing arrangements to give continuous patient care were made independently of any service rendered by the experimental nurses.[3] Whilst this experiment was in progress the regular three-year school of nursing was continued in the Royal Infirmary, so that no special arrangements had to be made for getting additional nursing staff, since the regular three-year students were available to give service in return for nursing education throughout the

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1. The Work of Nurses on Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Appendix A, p. 14.

2. ibidem, p. 15.

3. For short periods of time in the fifth and sixth terms of the course the experimental nurses were attached to the ward team and to some extent replaced the regular student nurse.

entire experiment.

Around these new principles of nursing education the Sub-Committee filled in the other details considered desirable in the establishment of this course. It was recommended that the experiment in the first instance should only last for five years, and that not more than three groups of thirty students should be recruited annually for three successive years. The experimental course, it was considered, should be established in a building separate from the hospital, where the students would live together and where "their corporate life would be developed". The need to select only those applicants considered suitable academically for this shortened course led the Sub-Committee to recommend that the candidates should be not less than eighteen and a half years old and "should be required to have had a good secondary education". No further details as to specific methods of selection were suggested.

The other recommendations of the Sub-Committee related to the educational content of the course, the number of staff required to give continuous supervision and the method of integrating the theoretical and practical aspects of it. A staff of not less than three nurse-tutors, one of whom would be the director of the school, and two clinical instructors was advocated, "who would be responsible for the supervision of the students for both day and night duty". the actual range and content of the syllabus which was to be more

comprehensive than that of the three-year normal course was to include the following subjects:-

> An Introduction to Nursing, Medical Nursing, Surgical Nursing, Communicable Diseases (including Tuberculosis), Paediatric Nursing, Gynaecology, Ophthalmic Nursing, Dermatology, Ear, Nose and Throat, Psychiatric Nursing, Obstetrics, Operating Theatre, Out-Patient Department and Nursing in the Domiciliary Field.

Psychiatric Nursing, Obstetrics and Nursing in the Domiciliary Field were all experiences outside the basic three-year curriculum.

In order to avoid "the present cramming method of the Preliminary Training School" it was suggested that the Preliminary State Examination should be completed at the end of six months. The Final State Examination was to be taken at the end of two years when the successful candidates would be granted registration, and then be allowed to work either as qualified nurses, or to undertake further post graduate training.

This Committee had, therefore, made quite drastic changes in the syllabus of the regular three-year course, but as a group they "felt that they were hardly competent to lay down in detail how such an experiment should be conducted", and they advised that a Steering Committee of "knowledgeable persons in the nursing and educational fields" should be appointed to plan the detailed arrangements required for this new course.

Meanwhile it was the good fortune of the nursing profession

that the Secretary of State for Scotland and the Nuffield Provincial Hospitals Trust agreed to the recommendations for the experiment, and jointly to the provision of adequate funds for its development over the initial five-year period. Subsequently, the Steering Committee, under the same chairmanship as the Sub-Committee, was appointed to give life and meaning to the course. In general, the Steering Committee endorsed the Sub-Committee's recommendations, and only a few amendments were made to the final plans. The most important changes related to the General Nursing Council State Examinations. The Preliminary State Examination was to be abolished altogether from the experimental course on the assumption that safe-guards in the form of class tests would be substituted at the end of the first year.

Another decision reversed by the Steering Committee was the Sub-Committee's proposal that the experimental students should become fully qualified nurses after taking the Final State Examination at the completion of the two-year course. It has already been mentioned that such experimentation must conform to the existing standards required by the General Nursing Council for state registration, and to safeguard this position it was agreed by the Steering Committee that although the alternative students should take their Final State Examination at the end of two years they should not be recognised as fully qualified nurses until they had completed a third, interne year. During this interne year they were to act as

staff nurses in their parent hospital, with the option of returning during the second six months to one of the hospitals to be visited during the course in the capacity of post-graduate students. As acting staff nurses or post-graduate students, the internes would work for the same number of hours per week as the regular nurses in Glasgow Royal Infirmary, and would receive a salary between the training allowance of a third year student and the pay of a qualified staff nurse.

This Committee was also more cautious and realistic about the possibilities of carrying out "patient assignment" nursing which had been suggested by the Sub-Committee. They recommended instead that although such a method of nursing was desirable it would not always be practicable, especially in outside hospitals to be visited by the students.

The other important decision taken by the Steering Committee was that the experiment should be carried out in Glasgow Royal Infirmary. Obviously a large hospital had to be selected for this purpose, and a teaching hospital with nearly a thousand beds offered a wide variety of experience in general and special fields of nursing within its own walls. Secondly, it would be possible to arrange for the students to get the other experience needed outside the hospital in a large city where there were an adequate number of other specialised hospitals.

Thus the Steering Committee had reaffirmed the main outline of

the experimental course put forward by the Sub-Committee of the Standing Nursing Advisory Committee, and none of the basic principles of student status and educational method had been altered. The exact planning of the syllabus, and detailed arrangements for the day to day administration of the experimental course will be discussed in a subsequent chapter of this study.[1]

It is now possible to appreciate the similarity between this experimental course in Glasgow and the two Canadian experiments referred to in Chapter II. The basic objectives and principles are, in fact, identical in attaching significance to the separation of nursing education from nursing service, encouraging genuine student status by linking the theoretical and practical content of the course and financing the experimental school out of a separate fund. The length and content of the curricula were not dissimilar, and the teaching methods adopted almost identical. The students at the Windsor, Ontario, School had been permitted to qualify after taking their registration examinations at the completion of the two years, whilst the students of the Atkinson School in Toronto, as in Glasgow, had to complete another year as internes under supervision before being recognised as registered nurses. The closeness of the Glasgow experiment to the Canadian pattern is undeniable, and in view of the

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1. Chapter VI - The Principal Differences between the Alternative and Regular Courses.

success of these earlier courses the extension of such a policy seemed fully justified.

The other equally significant feature of the Glasgow course was that it also incorporated many of the recommendations of the 1947 Working Party Report, the first official recommendation in Britain of the need to attempt such an experiment.[1] But this is not surprising, since the Nuffield Job Analysis came about as a result of the Working Party Report, and in turn stimulated the development of this Glasgow experiment. It is also apparent that this new course belongs to the school of nursing thought to which reference has already been made, which bases the independent school of nursing within the hospital and not the university campus.

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1. See Chapter II - p.26

CHAPTER V

## The Method of Evaluating the Glasgow Experiment

As the experimental course was being planned it was appreciated that such an unprecedented development in British nursing education called for some official method of evaluation. This necessity had, in fact, been recognised in both the White Paper of the Department of Health for Scotland[1] and the Steering Committee report. In the second document the need for assessment was expressed in these words:

> "The results of the experiment will be carefully assessed by independent observers who will cover all aspects of the training. The results of this assessment will be made available to the Council, so that they may determine in due course whether the experiment can be extended and continued". 2

To comply with this request an Assessment Committee, under the Chairmanship of Professor J.H.F. Brotherston, was established in 1957, shortly after the commencement of the experiment in September, 1956. The Boots Research Fellow was invited to join

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1. The Work of Nurses on Hospital Wards, Department of Health for Scotland, Scottish Health Services Council, Appendix A stated: "full records should be kept at all stages of the experiment to enable an evaluation of the results to be made at the end of the experiment".

2. Report of Steering Committee of Scottish Health Services Council, (unpublished paper).

this Committee, and as the working member of it has been responsible for the detailed planning of the method of evaluation, the collection and analysis of the data presented in this study.[1]

It was immediately evident that the assessment would be quite as experimental as the new course itself, in so far as no similar investigation had previously been carried out in Great Britain. The only earlier studies were, in fact, the Canadian and American ones previously mentioned.[2] Nor was the task of the Assessment Committee made any easier by the fact that the experiment had already commenced nearly a year before the members were appointed. For this reason fairly speedy decisions as to the method and timing of evaluation procedures were essential, and frequent meetings of this Committee took place in the first six months of its existence to discuss evaluation details and technique.

Such a study could either rest mainly on a subjective approach, that is on the basis of the opinion of those people carrying out the experiment and others closely associated with it, or upon the collection and analysis of factual data relating to the progress of the students throughout the course. The second method was considered to be the only one which could be pursued with any satisfaction to do justice to the importance of this experiment in nursing education. It did not, in fact, require a second look at

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1. The only aspect of this assignment for which the Boots Research Fellow was not responsible was the collection and analysis of the costing of the experiment with which this report is not concerned.

2. For reference to these studies see Chapter II.

the objectives of the experiment to underline the need for using a factual type of evaluation. They could be classified into two well-defined groups: those which were measurable in fairly exact terms, and one or two others which, although important, could never be precisely evaluated.

The planning of the assessment was therefore based on these premises, and the following list of the principal, associated and additional experimental objectives was drawn up.

The principal objectives of the new course were considered to be:

1. To prepare the student nurse for the Final State Examination of the General Nursing Council in two instead of three years.

2. To enable these students to act as staff nurses in their third year.

The associated objectives were considered to be:

1. To provide a greater number of trained nurses within the hospital service.

2. To decrease wastage rates amongst student nurses.

3. To attract greater numbers of students into the profession.

4. To develop student status.

The additional objectives were considered to be:

1. To produce a more fully educated and mature nurse with scope for greater personality development.

2. To improve the standard of patient care.

The additional objectives, especially the second one, were probably the most important in the whole experiment, but were the very ones which would prove difficult to evaluate whatever type of assessment was undertaken. The possibility of getting direct

co-operation from the patients in this matter was considered but rejected as impracticable, as there was nothing distinctive about the uniforms of the experimental students in Glasgow Royal Infirmary, and to the patients they would be indistinguishable from the other nurses in the wards. But even although the achievement of these particular objectives could not be precisely ascertained, it was anticipated that some indirect evaluation of them would be gained as a result of the assessment of the other objectives.

Further scrutiny of the measurable experimental objectives revealed the need for a twofold method of assessment to be adopted. In the first place it would be necessary to compare the performance of the experimental students in certain specific situations and times in their course with control groups taking the regular three-year course. It was essential to decide quite early in the evaluation proceedings just what these exact measures of comparability would be, and also how to establish the most effective control groups for this purpose. The most reliable theoretical test was likely to be the Final State Examination of the General Nursing Council, which the experimental students would have to take at the completion of the two years of their student course, together with the other students who had taken the regular three-year course. It also seemed desirable that a further test of theoretical ability, such as a multiple choice test, taken at the completion of the course would be a further useful check

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on theoretical achievement. For the evaluation of the students' practical level of competence it was considered that, if possible each of them should be asked to carry out a treatment for a patient on the wards which would be assessed by experts.

It was equally apparent that some attempt would have to be made to evaluate the contribution of the experimental nurses in their interne year compared with that of the regular trainees, which would necessitate the use of some objective method of observation by impartial experts. Lastly, the remainder of the principal and associated objectives would require the collection of both routine and specially-designed data relating to the progress of experimental and control students throughout the course and for some years after they left the parent hospital. This last operation included the analysis of both sickness and wastage records and also a follow-up study so as to faciliate the assessment of short-term as well as the long-term achievements of this new method of nursing education.

The details of the characteristics, size and progress of the control groups for this part of the evaluation will be given in detail in a later chapter of this study; but certain decisions as to which 'normal' students would provide the most effective controls had to be taken in the early stages of assessment planning. Two control groups were, in fact, considered adequate for this purpose. One group for obvious reasons had to be drawn from Glasgow Royal Infirmary itself, since these students would be available in the

same hospital to participate in any special tests to be carried out in the wards and classrooms. A second or 'outer' control group was established in Edinburgh Royal Infirmary, since these students were known to be educationally closer in standard to the experimental students than any other group in Scotland. It was envisaged that these Edinburgh controls would be included in the analysis of performance in the General Nursing Council Final State Examination, and also in the routine records relating to wastage and sickness during training and, if possible, the follow-up study. It was never anticipated that it would be practicable to conduct specially-designed tests in this second hospital.

Fairly detailed and extensive arrangements, as will be seen, were required to carry out these assessment projects, and the planning of these various phases and aspects of the work took approximately a year, from the autumn of 1957 to the autumn of 1958, to complete. Discussions were held with the Matrons of both Glasgow Royal Infirmary and Edinburgh Royal Infirmary as well as with the Director of the Experimental Course and the Principal Tutors of both hospitals. Some of the techniques to be used were unfamiliar and required considerable readjustment of nursing schedules and programmes within Glasgow Royal Infirmary. In both hospitals it was essential to get access to certain records, to specify control groups and to ascertain that certain records relating to these groups would always be available in years to come. It was in the course of such discussions that the experimental

nurses came, for convenience, to be called the 'alternative' nurses, and this name has been used throughout the remainder of this study to distinguish them from the 'control' groups of students taking the traditional three-year course.

The second method of evaluation considered necessary was the establishment of much wider and numerically larger control groups of student nurses on a national basis with whom the characteristics, abilities and progress of the alternative students could also be compared. Such a larger undertaking would inevitably lose much of the detail and precision obtainable in the earlier part of the evaluation already outlined, but would help to indicate the extent to which the new type of course might be viable nationally rather than locally. It was known that the two hospitals already providing the control groups for detailed comparison, Glasgow Royal Infirmary and Edinburgh Royal Infirmary, would be likely to enlist students considerably above the average level of ability; and unless it could be illustrated that this experiment was applicable to the average student nurses in Scotland, or Great Britain, a great deal of its raison d'etre would be nullified.

To carry out this second aspect of evaluation a cohort study was commenced in fifty-two Scottish hospitals in September, 1957 to study the background characteristics and progress of some two thousand student nurses commencing their training for the general, sick children's and infectious diseases registers of the General Nursing Council for Scotland. This study, like the

experimental course itself, is still progressing but it will be possible later on to make some direct comparison between certain achievements of the alternative students and these other 'average' students all over the country.

The effectiveness of such evaluation plans could certainly not be forecast in advance, since they were as new as the experiment itself. The two earlier evaluations of the shortened Canadian courses in Windsor, Ontario and Toronto, had been similar to the first detailed phase of the present method of study, but were considerably less comprehensive than the whole Glasgow assessment schedule. In both the Canadian studies a comparative method of analysis was used relating the performance of the alternative students to that of other control groups in the same or nearby hospitals. Within this localised framework, however, there was no opportunity in the Windsor experiment to cover the performance of the nurses after they qualified at the end of two years, since at this stage they were free to leave the hospital and take posts as trained personnel where they wished. An interne year was included in the Toronto experiment, but no specific attempt was made to evaluate the nurses' performance beyond collecting a few random opinions from senior nursing personnel of the hospitals in which they were working under supervision.[1]

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1. Report on the Experiment in Nursing Education of the Atkinson's School Nursing, Toronto, Western Hospital, 1950 - 1955, Dr. Stewart Wallace, P. 14.

It will be recalled that almost the same evaluation plans were made for the assessment of the Junior Community College courses being conducted in the United States.[1]

In none of these Canadian or American studies was any assessment made of the practical ability of the alternative nurses at any time in their course, the main criteria of success being related to performance in the state examinations, and the amount of sickness and wastage which occurred during the two student years. Nor was any wider evaluation of the new courses made at a national level, although the federal political structure and much greater size of the countries concerned would probably have made such a venture extremely difficult.

The details of the planning of this assessment and the results achieved from the different tests and procedures used are the basis of the remaining sections of this study. Sections III to V relate principally to the first part of the evaluation and are based on a detailed comparison of the performance of the alternative and Glasgow Royal Infirmary and Edinburgh Royal Infirmary control students in the various examinations and tests carried out both before and after the Final State Examination. Section VI presents the second aspect of the evaluation where the background and achievements of the alternative students are

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1. M. L. Montag, Community College Education for Nursing, 1959.

compared with similar features among the average students all over Scotland; and in Section VII an appraisal of all these findings in relation to the original objectives of the experiment and the problems of basic nursing education responsible for this and other similar courses is attempted.

## SECTION 3

## CHAPTER VI

### The Principal Differences between the Alternative and Regular Nursing Courses in Scotland.

A study of the objectives of the experiment outlined in Chapter IV makes it apparent that their achievement would necessitate fairly drastic changes in the planning of the experimental course. Some of the major decisions which would be most likely to influence the new course were the reduction of the student syllabus to two instead of three years' duration, and the decrease of the students' working week from something over forty-six hours to forty hours. Other important changes included the almost complete elimination of night duty and the development of a more comprehensive type of course. The general tendency in recent years when re-planning student courses in other professions has been to extend them, in order to increase the amount of knowledge acquired. It is certainly unusual in this age of specialisation to attempt to improve and develop a course which is simultaneously decreased in length. But the reasonableness of this policy had already been demonstrated in the Canadian experiments, and the proof of repetitiveness and misuse of the students' time illustrated in the Nuffield Job Analysis Study gave the Steering Committee an opportunity of trying to reconcile these apparently divergent trends.

If this experiment was to take shape at all, it was clear that a new syllabus in both the practical and theoretical fields would be required, and also that a new philosophy of student nurse status and educational method would have to be evolved. The most significant of these new developments will be discussed in this chapter, showing the main differences between experimental and traditional method.

The material presented in this chapter has been obtained by two methods. Firstly, it was possible to collect data and schedules relating to curriculum planning, working hours and syllabus content from the Matron and Principal Tutor of Glasgow Royal Infirmary and the Director of the Alternative Course. The detailed information provided is, therefore, up to date so far as is known, and any slight alterations which may have been made since in the experimental syllabus have been noted whenever possible. The other source of information was a systematic observation undertaken by the writer of the experience available to the alternative students over their two-year course, as they progressed through the wards of Glasgow Royal Infirmary and other outside hospitals.

The purpose of this observation was not to attempt a critical assessment of experience acquired or standard of performance and technique attained, but to make a comparative analysis of the new as opposed to the traditional method of training. This observation covered every phase of the experimental course and was

arranged for both the parent hospital and the other outside hospitals through the good offices of the Matron of Glasgow Royal Infirmary. Several days of observation were carried out during each term of the course and free access was permitted the observer whenever desired in all the wards and departments of Glasgow Royal Infirmary. The outside hospitals visited by appointment were Glasgow Royal Maternity Hospital, Glasgow Royal Mental Hospital, Royal Hospital for Sick Children, the Eye Infirmary and Belvidere Infectious Diseases Hospital; but in each instance every ward and department was entered, as desired.

The discussion of the new and traditional courses has been divided into three sections in order to illustrate in the first place the major structural alteration in the experimental course which facilitated the growth of student status as compared with the traditional apprenticeship system of training. The last two sections will indicate how these new developments have been implemented in both the theoretical and practical syllabuses.

## The Principal Differences between the Student and Apprenticeship Methods of Training

Some of the major alterations in the establishment of the new course related to the practical syllabus, and one of the most outstanding of these new features was the pre-planning of all the clinical experience throughout the two year period. The alternative students knew the exact length and timing of every

phase of the course, which was divided into six terms. There were three terms of sixteen weeks' duration in each year, which gave the course some appearance of an academic year more befitting the development of student status. In contrast to this position the regular students of Glasgow Royal Infirmary, as in all other hospitals, have only a general idea of the timing and type of practical experience available to them. In most hospitals there are in existence well-intentioned plans governing the allocation of students to various wards and departments, but although every effort is made to adhere to such schedules almost inevitably they are over-ruled by the more urgent needs of staffing the hospital, or coping with emergencies. Recent verification of this state of affairs was given in a study carried out by the South Eastern Metropolitan Regional Hospital Board of London:

> "There can be little doubt that each hospital arranges its particular practical training in the light of the nursing service requirements of the hospital, whilst at the same time endeavouring to ensure that the nurse undergoing training gains sufficient practical experience which, allied to her theoretical training, will produce the desired standard necessary for taking the examinations..... set by the General Nursing Council."1

In this report it was also stated that students complained that their training lacked balance, and it was established that the

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1. The Work of Student Nurses and Pupil Assistant Nurses, Report of the South Eastern Metropolitan Area Nurse-Training Committee to the General Nursing Council for England and Wales, 1957 - p. 27.

brighter students are promoted to positions of responsibility more quickly, which increases this same tendency.[1]

Another contrast in the range of practical experience available to the two groups has been the amount of night duty carried out. For the alternative students this was again specified in advance and could not exceed five to six weeks altogether over the two years. The regular students, however, in all hospitals have to undertake a much greater and more variable amount of night duty. According to the General Nursing Council regulations this should not exceed three months in any year of the course, but it may be undertaken at any time in each year and interrupted for such other purposes as study blocks or holidays. The total amount of night duty undertaken by each regular student can therefore vary from something like a few weeks to the greater part of a whole year before the Final State Examination is taken.

A second type of difference apparent in the two types of course was the much greater variety of clinical experience available to the alternative students. During their two-year course these students, in a series of visits to outside hospitals ranging from three weeks in the Eye Infirmary to seven weeks in the Royal Mental Hospital, had an unprecedented opportunity of learning

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1. The Work of Student Nurses and Pupil Assistant Nurses, Report of the South Eastern Metropolitan Area Nurse-Training Committee to the General Nursing Council for England and Wales, 1957 - pp. 28 and 31.

about other specialised branches of the nursing service. It is not customary for regular student nurses in Scotland to get any experience in psychiatric or obstetric nursing care, two of the most important branches of the profession. The other advantage of gaining such additional experience was that it enabled the alternative students to assess where their own interests would lie at the completion of the course.

The difference between the amount and type of practical experience available to both groups of students is indicated in table No. 2, which shows how the alternative students cover a wider range over shorter periods of time.

Table 2 The Range and Extent of Practical Experience Available to Alternative and Regular Glasgow Royal Infirmary Students on their respective Courses.

| Type of Experience | Alternative Students No. weeks | Regular Students ** No. weeks |
|---|---|---|
| Medical Nursing | 18 * | 30 |
| Surgical Nursing | 18 * | 30 |
| Gynaecology | 4 | 6 |
| Paediatrics | 4 | 6 |
| Out Patient & Casualty Departments | 3 | 6 |
| Special Departments ( Ear, Nose & Throat ( Dermatology ( Ophthalmology | 9 | 12 |
| Operating Theatre | 6 | 4 |
| Infectious Diseases (including Tuberculosis) | 5 | 8 |
| Psychiatric Nursing | 7 | - |
| Obstetric Nursing | 4 | - |
| Domiciliary Nursing | 2 | - |
| Unspecified Experience | - | 18 |

* This calculation has been based on the total length of the time allocated to medical and surgical nursing throughout the alternative course, and is approximately correct. It is difficult to specify the exact number of weeks, as during the first and second terms the alternative students only spent a very short time, one or two days per week, on the general wards.

** These figures have been based on the minimum number of weeks of practical experience required for general training by the Scottish General Nursing Council as from January 1st, 1956.

N.B. It should also be remembered that the alternative students only at a maximum spent thirty-two hours per week in the wards, whereas the regular student in Glasgow Royal Infirmary at this time spends approximately forty-six and a quarter hours per week on the wards.

Another outcome of this more varied practical curriculum necessitated the removal of repetition from the experimental course - one of the criticisms of the regular training system made by the Nuffield Job Analysis Study - if sufficient experience was to be gained in each field in the time allowed. Although the alternative students worked alongside the regular students on the wards giving patient care, as directed by their clinical instructor or the ward sister, whenever their allotted period of experience was completed they moved on to the next part of the course. This principle had to be used if these alternative students were to learn the various techniques and procedures in each department in the limited time available. There was no equally pressing need for the regular students to gain their practical experience at the same rate, except in a few specialty departments, such as gynaecology, theatres or dermatology, where the bed numbers are small and consequently the experience available for large numbers of regular students limited. But generally in the traditional course it is inevitable that a student nurse will be allocated to general medical and surgical wards on several occasions on day and night duty, so that the same necessity to learn as much as possible in a limited period of time does not exist.

The alternative students are greatly assisted in this different rate of assimilation by the presence of clinical instructors, whose work will be discussed in detail later in this chapter. Throughout the first year and whenever necessary in the second year these instructors give individual tuition and super-

vision in all basic and technical nursing procedures to the alternative students; and some idea of the rapid absorption of knowledge and technique in the specialty field is indicated in the following list of procedures which the alternative students carried out during a four-week session at the Royal Maternity Hospital in Glasgow during the third term of the course.

Ante and Post-Natal Wards

1. General nursing care of patient
2. bathing babies
3. infant feeding rounds
4. taking blood pressure
5. giving injections
6. catheterisation of patient
7. toilet and swabbing round
8. administration of enemeta
9. urine testing

It will be noted that, apart from items 2, 3 and 7, which had to be specially demonstrated to the alternative students, all these procedures belong to the experience gained by them in the first two terms of the course.

The Labour Ward

1. general nursing care of mother
2. bathing mother after delivery of baby
3. taking blood pressure
4. giving injections
5. helping midwife care for mother in first, second and third stages of labour, including listening to foetal heart, administration of trilene and gas and oxygen
6. catheterisation of patient
7. administration of enemeta
8. vulval toilet

Premature Baby Unit

1. general nursing care of premature babies
2. bathing premature babies
3. feeding premature babies - with the exception of mixing special feeds and passing oesophageal tubes
4. toilet care

Because of the entirely different rate of acquiring practical experience and the endless permutations possible in the regular course for each student it was impossible to compare the progress of the two student groups in any systematic way. On one occasion, however, during the middle of the first year it was possible to get some idea of the rate of progress made by students from each group at a similar stage in training. It soon became apparent that the alternative students had at this point carried out a wider variety of nursing procedures than the regulars, such as applying simple dressings, giving hypodermic and intramuscular injections and observing the administration of medicines in addition to the usual routine nursing procedures. The regular students, on the other hand, talked only of the frequent carrying out of routine procedures such as blanket bathing, care of oral hygiene, feeding patients and care of pressure areas.

A third notable difference between the two groups related to the amount of responsibility assumed for patient care before taking the Final State Examination. It is apparent that the student status enjoyed by the alternative groups greatly retarded the development of this particular quality, whereas all the conditions of the regular course favoured its growth. The

alternative students, in addition to their supernumerary status, were never working in the wards for more than thirty-two hours in any week as compared with the forty-six and a quarter hours of duty carried out by the regulars. Similarly, as already indicated, they usually stayed on each ward for a shorter number of weeks, which also militated against the development of responsibility for patient care. Only in the fifth and sixth terms of the course did the alternative students, when working in Glasgow Royal Infirmary, actually replace a regular student to some extent in the ward team.

The most vivid contrast in the level of responsibility assumed by students in the two groups was observed on night duty when a regular student in her second year would frequently be put in charge of the ward whilst an alternative student of the same seniority was always the junior night nurse of the team for a period of three weeks only.

Similar differences were equally noticeable in the theoretical part of the two courses. The most outstanding difference in this respect was the continuity of learning possible in the experimental course compared with the intermittent facilities available to the regular students. During every week of the course the alternative students spent at least one day in their classroom, where theory was integrated at all times with practical experience. This integration of theory and practice was also assisted by the presence of both tutors and clinical instructors with the students in the wards and classrooms. The position of the regular students

was once again very different. Their acquisition of theoretical knowledge was certainly planned in advance, but took place in a series of study 'blocks' of about two - three weeks' duration held once or twice a year. After the Preliminary State Examination was passed there were three such 'blocks' in Glasgow Royal Infirmary, which is typical of the regular training school pattern. One was entitled the 'surgical block', one the 'medical block' and one the 'specialty block', which aptly indicates the concentration upon one aspect of theory at a time irrespective of whatever practical ward experience the students might or might not have had.

The integrated versus the intermittent method of presenting the theoretical programmes of the two courses is illustrated in table No. 3.

87

Table 3 Integrated Versus Intermittent Arrangement of Theoretical Programmes in the Experimental and Glasgow Royal Infirmary Regular Courses

| | Alternative Students | | | | Regular Students | | |
|---|---|---|---|---|---|---|---|
| | Period of Course | Theory Hrs/week | Practice Hrs/week N/S | Practice Hrs/week C/I | Period of Course | Theory Hrs/week | Practice Hrs/week |
| FIRST YEAR | Term I 4 weeks | 36 | 2 | 2 | P.T.S. 5 weeks | 40 | - |
| | 12 weeks | 32 | 3 | 5 | 1 week on wards | - | 40 |
| | | | | | P.T.S. 6½ weeks | 40 | - |
| | Term II 16 weeks | 16 | 18 | 6 | From P.T.S. to 1st R.B. 10½ weeks | - | 46¼ |
| | | | | | 1 week R.B. | 40 | - |
| | Term III 12 weeks | 8 | 24 | 8 | From 1st R.B. to 2nd R.B. 23 weeks | - | 46¼ |
| | 2 weeks (N.D.) | - | 28 | 12 | R.B. 1 week | 40 | - |
| | 2 weeks | 8 | - | 32 | | | |
| SECOND YEAR | Term IV 9 weeks | 7 | 29 | 4 | 1st half 2nd year 21 weeks | - | 46¼ |
| | 7 weeks | 7 | 27 | 6 | Medical Block | 40 | - |
| | Term V 8 weeks | 7 | 30 | 3 | 2nd half 2nd yr 21 weeks | - | 46¼ |
| | 3 weeks (N.D.) | - | 40 | - | Surgical Block | 40 | - |
| | 5 weeks | 7 | 23 | 10 | | | |
| | Term VI 8 weeks | 7 | 33 | - | | | |
| | 8 weeks | 7 | 31 | 2 | | | |
| THIRD YEAR | The Interne Year<br>One full day each month spent in the classroom by the alternative nurses. | | | | 1st half 3rd yr 20 weeks | - | 46¼ |
| | | | | | 3½ weeks | 40 | - |
| | | | | | 2nd half 3rd yr 22 weeks | - | 46¼ |
| | | | | | 2 weeks R.B. | 40 | - |

P.T.S. refers to Preliminary Training School R.B. refers to Revision Block N.D. refers to night duty
N/S refers to nursing service C/I refers to clinical instruction

This continuity of learning available to the alternative students also assisted the development of other characteristics which differentiated them from the regular type of student nurse. The fact that they were all getting similar theoretical and practical experience at the same time made for a noticeable sense of group loyalty and the development of friendships on a permanent basis. This homogeneity was further assisted by the fact that the alternative students were permitted to take their Final State Examination at the completion of their two-year course, irrespective of the amount of sick leave they had, so long as any lectures missed were made up before taking the examination. Again the regular students were deprived of these particular facilities, as the only time they spent together was during the study 'blocks', and even then they could be requested to join a more junior group, if they had exceeded the official length of sickness absence permitted by the General Nursing Council.

Another notable difference in the educational aspect of the two courses was the variation in tutor-student ratios. In the experimental course there were five qualified teachers - two nurse-tutors, two clinical instructors in addition to the Director of the course, herself a qualified tutor - to supervise the education of fifty students at a time. This ratio of one to ten compared most favourably with the regular course where there were some seven teachers - five qualified tutors and two unqualified tutors - between the Preliminary Training School and the senior School of

Nursing for some three hundred and fifty students, or a ratio of approximately one to fifty. It was, therefore, possible for the alternative students to develop a continuous and close working relationship with their tutors, and the opportunity of teaching and discussing problems in small groups was much more effectively achieved than in the much larger regular groups.

It was fortunate that it was possible to observe these principal differences between the new and old methods of training in one hospital. Nor did the existence of the experiment appear to affect the customary placement and experience available to the regular students in any undesirable way, as the alternative groups were small in size and were fairly easily dispersed over such a large hospital, as well as spending considerable periods of time elsewhere. There were just a few occasions in the specialty departments of Glasgow Royal Infirmary when both groups of students were competing seriously for similar practical experience, but these were short lived episodes, and on the whole the precision of the experimental course was so different from the more gradual and less scheduled arrangements made for the regular students that the needs of both groups could be reasonably catered for in such a large hospital.

The Implementation of the Theoretical Syllabus of the Alternative Course

The development of the experimental course has necessitated the use of certain different educational methods in order to cover

Table 4

Syllabus covered and Number of Lectures given to Alternative & Regular Students

| Experimental Course | | | | Regular Course | | | |
|---|---|---|---|---|---|---|---|
| Time of Course | Subjects | Lectures by Doctors Etc. Hours | Lectures by Tutors Hours | Time of Course | Subjects | Lectures by Doctors Etc. Hours | Lectures by Tutors Hours |
| 1st Year Term I | Anatomy & Physiology | - | 50 | 1st Year P.T.S. | Anatomy & Physiology | - | 55 |
| | Biology & Science | - | 10 | | Hygiene & Nutrition | - | 35 |
| | Personal Health & Nutrition | - | 39 | | Practical Nursing | - | 120 |
| | Bacteriology | - | 10½ | | Bandaging | - | 20 |
| | Cookery & Domestic Science | - | 35 | | First Aid & Cookery | - | 12 |
| | Nursing - Theory & Practice | - | 100 | | Introduction to Chemistry & Physics | - | 2 |
| | Bandaging | - | 10 | | History of Nursing | - | 6 |
| | First Aid - Theory & Practice | - | 15 | Revision Block Pt. I P.S.E. | Anatomy & Physiology | - | 17 |
| | Ethics & Human Relations | - | 12 | | Hygiene & Nutrition | - | 10 |
| | Psychology | - | 10 | Revision Block Pt II P.S.E. | Practical Nursing | - | 15 |
| | History of Nursing | - | 10½ | | First Aid | - | 8 |
| | Professional Affairs | - | 4½ | | Total Hours Instruction in 1st year | - | 300 |
| Term II | Nursing Procedures- Medical & Surgical | - | 52 | 2nd Year Medical Block | Medicine & Medical Nursing | 16 | 18 |
| | Surgery & Surgical Nursing | 15 | 24 | | Communicable Diseases | 4 | 1 |
| | Genito-urinary | 2 | 2 | | Practical Nursing | - | 17½ |
| | Bacteriology | 4 | 4 | | Occupational Therapy & Physiology | 3 | - |
| | Anaesthetics | 2 | 2 | | Almoner | 1 | - |
| | Radiotherapy | 2 | 2 | | Health Visitor | - | 1 |
| | Medicine & Medical Nursing | 16 | 24 | | Medical Paediatrics Theory & Practice | 2 | 1 |
| | Physiotherapy | 2 | - | | Ward Clinical Classes | - | 2 |
| | Dietetics | - | 10 | 2nd Year Surgical Block | Surgery & Surgical Nursing | 17 | 12 |
| | Applied Anatomy & Physiology | - | 24 | | Bacteriology | 3 | 3 |
| 1st Year Term III | Paediatric - Theory & Practice | 4 | 6 | | Orthopaedics | - | 8 |
| | Gynaecology | 8 | - | | Surgical Paediatrics | 2 | - |
| | Gynaecological Nursing | - | 12 | | Anaesthetics | 2 | 2 |
| | Obstetric Nursing | - | 4 | | Operating Theatre technique | - | 9 |
| | Orthopaedic Nursing | 2 | - | | Practical Nursing | - | 10 |
| | Pharmacology | 10 | 10 | | Ward Clinical Classses | - | 2 |
| | Social Aspects of Disease | - | 2 | | Total Hours Instruction for 2nd year | 50 | 86½ |
| | Health Visitor | - | 1 | 3rd Year Special Block | Psychiatry | 2 | - |
| | District Nurse | - | 1 | | Gynaecology | 8 | 12 |
| | Ward Administration | - | 5 | | Pharmacology | 10 | - |
| | Nurses & the Law | - | 3 | | Ear, Nose & Throat Diseases | 3 | - |
| | Embryology | - | 2 | | Ophthalmology | 3 | - |
| | Applied Anatomy & Physiology | - | 4 | | Dermatology | 3 | - |
| | Practical Nursing Procedures in Gynaecology, Paediatrics, Obstetrics & Orthopaedics | - | 20 | | Venereal Diseases | 2 | - |
| | Total Hours Instruction in 1st year | 67 | 521 | | Radiotherapy | 2 | - |
| 2nd Year Term IV | Psychiatry | 9 | 8 | | Dietetics | - | 14 |
| | Psychiatric Occupational Therapy | 3 | - | | Practical Nursing | - | 9 |
| | Psychiatric Nursing Procedures | - | 20 | | Theatre (Gynaecology, Ear, Nose & Throat | - | 2 |
| | Ear, Nose & Throat Diseases | 3 | 6 | | Law for Nurses | 1 | - |
| | Ophthalmology | 3 | 6 | | Public Health Clinic | 1 | - |
| | Dermatology | 3 | 6 | | Revision Block | - | 80* |
| | Venereal Diseases | 2 | 2 | | Total Hours Instruction 3rd Year | 35 | 37 |
| | Nursing Procedures - Special Diseases | - | 15 | | Total Hours Instruction in 3 years | 85 | 423½ |
| Term V | Communicable Diseases | 6 | 20 | | | | |
| | T.B. Nursing | 4 | - | | | | |
| | Tuberculosis Social Aspects | - | 2 | | | | |
| | Practical Nursing Procedures | - | 15 | | | | |
| | Revision Classes | - | 50* | | | | |
| Term VI | Operating Theatre Technique | - | 6 | | | | |
| | Professional Organisations | - | 4 | | | | |
| | Revision Classes | - | 118* | | | | |
| | Total Hours Instruction in 2nd Year | 33 | 110 | | | | |
| 3rd Year | IN interne year the alternative nurses spend one day a month at Cleveden Road | | | | | | |
| | Total Hours Instruction in 2 years | 100 | 631 | | | | |

* Approximate number of hours available for Revision Classes for alternative and control nurses which have not been included in the total number of lectures and tutorials available to these nurses.

N.B. In addition to the formal lectures and tutorials listed in this table the alternative students had approximately the following hours allocated each term for case presentations, group discussions, individual and project assignments:

| Term of Course | No. of hours |
|---|---|
| I | 28½ |
| II | 31 |
| III | 53 |
| IV | 38 |
| V | 19 |

this wider syllabus in a shorter period of time. The first change required was the concentration of all the lectures into a two-year rather than a three-year period; and in table No. 4 the variation and distribution of theoretical instruction throughout the two courses - experimental and regular - is compared.

The second point which is illustrated by a study of the respective syllabuses is the difference in the pace of education. For instance, the alternative students had the greater number of their medical lectures and tutorials during the first year of the course. By the fifth term they were left with only ten lectures on infectious diseases, six theatre tutorials and four lectures on professional organisation to complete their syllabus. They, therefore, had an opportunity of revising material for quite a considerable part of the fifth term and nearly the whole of the sixth term. In contrast to this situation the regular students did not receive any doctors' lectures at all in their first year, and still had a large number of them to receive in their third year.

It must be remembered, however, that in the regular three-year course it is the general practice not to introduce the students to new material for the final part of the syllabus until the Preliminary State Examination has been successfully passed after the completion of one year in hospital. The alternative students were not affected by this consideration, since they were not required to take the Preliminary State Examination, and so after completing the necessary lectures for this part of the course in their first term they were able to move on to the other parts of the syllabus right away. In the second and third terms, which are still part of the experimental first year, the alternative students had received all their lectures on general medicine and surgery and many of the lectures on specialty subjects, such as paediatrics, gynaecology,

radiotherapy, pharmacology,[1] bacteriology and dietetics, which the regular students did not get until they reached the study blocks in the second or third year.

Another difference to note was in the actual content of the subjects covered. Some subjects were included in both courses, but could be given in more detail in the experimental course. There were also new subjects added to the experimental syllabus, which, as table No. 5 illustrates, gave it a more comprehensive coverage. These subjects included obstetrical nursing, applied anatomy and physiology, psychology, clinical psychiatry and ward administration.

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1. Pharmacology was originally taught in the second term, but it was found after the first year that the theoretical syllabus was over-loaded in the second term, and so it was transferred almost entirely to the third term.

Table 5

**The Principal Additional Lectures and Tutorials taught in the Experimental Course and Glasgow Royal Infirmary Regular Course.**

| | SUBJECT | Alternative Students | | G.R.I. Control Students | |
|---|---|---|---|---|---|
| | | Lectures | Tutorials | Lectures | Tutorials |
| 1 | Applied Anatomy & Physiology | - | 28 | - | - |
| 2 | Psychology | - | 10 | - | - |
| 3 | Obstetric Nursing | - | 4 | - | - |
| 4 | Professional Affairs | - | 8½ | - | - |
| 5 | Cookery and Domestic Science | - | 35 | - | 12 |
| 6 | General Science | - | 10 | - | 2 |
| 7 | Psychiatry | 9 | 8 | 2 | - |
| 8 | Paediatrics | 4 | 6 | 4 | 1 |
| 9 | Pharmacology | 10 | 10 | 10 | - |
| 10 | Bacteriology | 4 | 14½ | 3 | 3 |
| 11 | Practical Nursing Procedures | - | 217 | - | 171½ |

In this fashion the syllabus was designed to achieve the dual objectives of covering a wider range of subjects in shorter time.

Such a concentrated theoretical syllabus necessitated not only a much higher proportion of teachers to students, which has already been noted, but the use of different educational techniques. Two such features of special interest in the experimental course were the presentation of case histories and specially-assigned projects. Many case histories were compiled by each student throughout the course, and whenever they were relevant to the lectures being given on any study day then one or more of them would be presented to the whole class. Project assigments, on the other hand, were not introduced until the fifth term, and were used in the last two terms as a useful method of self-revision. The technique was to give each student one aspect of a broad subject, such as surgery of the abdomen, to prepare theoretically or for practical demonstration. For this subject some nurses had to prepare a ten to twenty minute paper on the cause, diagnosis or treatment of major abdominal conditions, whilst other students had to give a practical demonstration of some of the nursing procedures required in the treatment of such illness. These contributions by the students were inevitably more time-consuming, but had the advantage of making them direct participants in the teaching process, and also enabled them to gain poise and confidence in themselves.

Another interesting procedure practised at the experimental school in Cleveden Road was student counselling. This meant that

the student could, during certain study periods, seek special advice and help from a tutor or clinical instructor on any subject which she found obscure or difficult to understand. The correlation of ward work and theoretical teaching made it possible for the tutors and clinical instructors to keep pace with diagnosis and treatment of most of the patients in the wards to which these students were allocated. This feature not only stimulated discussion in the classroom, but injected a sense of reality into the whole teaching programme.

These special techniques were not available to the regular students, whose larger classes, relatively smaller number of teachers and intermittent theoretical instruction all made such experimentation impracticable. Nearly all their teaching was carried out formally and study periods frequently supervised.

But even in the experimental course many of the more traditional methods of teaching were also retained. The structure of the study day was basically similar to that of the regular course, in so far as it was interspersed with one or two formal lectures from doctors or medical ancillaries, which were expanded or simplified, as necessary, by the tutors. There was a practical demonstration nearly every study day directly relating to the part of the course under consideration, and the students prepared their apparatus and demonstrated nursing techniques to one another under the supervision of the clinical instructors.

On most occasions during the course the students took their

own notes, and these were only dictated to them in the case of certain more intricate nursing procedures. During many of the study periods they were expected to prepare a specific subject for some forthcoming test or examination. In one respect the experimental course more than matched the regular one and that was in the number of tests and examinations to be carried out. Table No. 6 indicates that the alternative students were confronted with a considerably higher number of them in two years than were the regular nurses in their three-year course.

Table 6 — The Number of Tests and Examinations taken by the Alternative and Glasgow Royal Infirmary Regular Students during their respective Courses (excluding General Nursing Council Examinations

| Alternative Students | | | | Regular Students | | | |
|---|---|---|---|---|---|---|---|
| Period of Course | No. of Tests | No. of Exams. | | Period of Course | No. of Tests | No. of Exams. | |
| | | W/P* | V/V** | | | W/P* | V/V** |
| FIRST YEAR Term I | 20 | 6 | 8 | FIRST YEAR P.T.S. | 18 | 7 | 1 |
| Term II | 12 | 6 | 3 | 1st Revision Block | 1 | 2 | - |
| Term III | 5 | 5 | - | 2nd Revision Block | 1 | 2 | 2 |
| SECOND YEAR Term IV | 5 | 5 | - | SECOND YEAR Medical Block | 3 | 1 | 1 |
| Term V | 2 | 2 | - | Surgical Block | 3 | 1 | 1 |
| Term VI | 5 | 2 | - | THIRD YEAR Specialty Block | 3 | 4 | 1 |
| | | | | Revision Block | 5 | - | - |
| TOTAL | 49 | 26 | 11 | TOTAL | 34 | 17 | 6 |

* W/P refers to Written and Practical examinations

** V/V refers to Viva Voce examinations

The Implementation of the Practical Syllabus of the Experimental Course

The arrangement of practical experience in the experimental course also needed special implementation, if all the requirements of the new syllabus were to be met in a two-year period. As indicated earlier, the time spent by these alternative students in the wards was much shorter than the regular groups, and the extent of this difference is illustrated in table No. 7. The calculations of the number of hours spent on the wards by the two groups of students has been based on the forty and forty-six and a half hour working week of the alternative and regular students respectively. This rate for the regular students was based on an assessment over their three-year course made by the Matron of Glasgow Royal Infirmary, and can be regarded as typical of other hospitals too. The new official working week for the regular students is now forty four hours only, but is usually exceeded. The time spent by both groups of students in their classrooms have also been excluded from these figures.

Table 7

**The Number of Hours of Practical Ward Work carried out by the Alternative and Glasgow Royal Infirmary Regular Students.**

| | Alternative Students | | | Regular Students | |
|---|---|---|---|---|---|
| | Period of Course | N/S* hrs. | C/I** hrs. | Period of Course | N/S* hrs. |
| FIRST YEAR | Term I | 68 | 44 | P.T.S. | 40 |
| | Term II | 288 | 96 | from end of P.T.S. to 1st Revision Block | 463 |
| | Term III | 344 | 184 | from 1st to 2nd Revision Block | 1058 |
| | Total in 1st year | 700 | 324 | Total in 1st year | 1561 |
| SECOND YEAR | Term IV | 450 | 78 | 1st half of 2nd year (to Medical Block) | 958 |
| | Term V | 458 | 84 | | |
| | Total in 2nd year | 1420 | 178 | 2nd half of 2nd year (to Surgical Block) | 950 |
| | | | | Total in 2nd year | 1908 |
| THIRD YEAR | Interne Year<br>Nursing service given is approximately 2024 hours. | | | 1st half of 3rd year | 943 |
| | | | | 2nd half of 3rd year | 1012 |
| TOTAL STUDENT SERVICE | | 2120 | 502 | TOTAL STUDENT SERVICE | 5424 |

* N/S refers to Nursing Service

** C/I refers to Clinical Instruction

It should also be noted that whereas the regular student spent all her time giving direct nursing service to the patients, about one quarter of the time spent on the wards by the alternative students was devoted to clinical instruction. Although this instruction was always based on the nursing programme of the ward, the contribution of these students to the nursing team was inevitably reduced at such times. The proportion of time spent under clinical instruction was, however, considerably reduced in the second year, as illustrated in this table.

This process of practical assimilation was greatly assisted by the employment of two clinical instructors on the staff of the experimental school. The employment of such personnel was not entirely new, but this was the first time that the instructors were able to supervise carefully the work of a small number of students throughout their course.

Not only is it difficult to find the personnel for this function, but it has also been feared that the introduction of these practical nurse instructors would jeopardise the ward sisters' overall responsibility for total nursing care of the patients. On the other hand, there had been a plea for the use of more clinical instruction for student nurses in the Nuffield Job Analysis, the mainspring of the present experiment. It was quickly apparent that no such fears need be harboured when the ward sisters and clinical instructors are able, objective-minded people; and indeed far from detracting from the ward sisters' authority this new method appeared

to strengthen it.[1]

Whether working inside or outside Glasgow Royal Infirmary the clinical instructors always consulted the sister or staff nurse on duty as soon as they came to the ward about her programme for the day, and sought permission for carrying out or supervising any nursing procedure with the alternative students working there. This discussion and agreement between the instructors and the ward sisters ensured the success of this new work, and such effective co-operation also prevented any serious friction arising between the claims of the alternative and regular groups of students to practise new or advanced nursing techniques.

The following list shows the range and quantity of work accomplished by a clinical instructor during one day in the second term of the course.

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1. Frequently clinical instruction was also given by the two nurse-tutors on the staff of the alternative course. Sometimes the wide dispersal of students made this necessary, but on several occasions unexpected illness amongst the teaching staff necessitated the assistance of the tutors in clinical instruction.

Demonstration and Ward Teaching

carried out in one day by a Clinical Instructor

i) 8.30 a.m. - 10.0 a.m.

Visited all seven surgical wards to which alternative students were allocated to discuss arrangement of demonstration with ward sisters.

ii) 10.15 a.m. - 1.0 p.m.

1½ hours (approximately) spent with two students in theatre observing hemi-colectomy operation.

Supervision of two students carrying out oral toilet for patient with fractured mandible.

Demonstration of irrigation of eye - two students

Demonstration of intravenous infusion given pre-operatively to diabetic patient - two students.

iii) 1.45 p.m. - 5.0 p.m.

Demonstration of colostomy lavage - two students.

Supervision of hypodermic injection of morphia given by one student.

Checking clinical instruction book for eight students.

Discussion of case history progress with four students.

As far as the alternative students were concerned the role of the clinical instructor fell into two distinct phases. In the first two terms of the course, and whenever the students were attached to hospitals outside Glasgow Royal Infirmary, the clinical instructors were principally concerned with the demonstration and supervision of new nursing techniques. In the first instance, they usually demonstrated a procedure for one or two alternative students, themselves carrying out the treatment or nursing care required by the patient. The next time they supervised the student, and when they were satisfied that the nurse was

proficient they then signed her clinical instruction book to this effect.[1]

When the basic nursing procedures had been learned, as most of them were by the end of the first year of the course, the need for such close supervision decreased, and the second phase of the clinical instructor's role emerged. This was a supervisory one, and it could mean that she saw the student only once or twice a week. In fact this stage was reached by the fifth term, when the alternative students were working on the wards of the parent hospital for the second time. The students began at this time to gain more confidence in their own abilities: they had received instruction in almost all the routine basic and technical nursing procedures. This development of greater independence was spontaneous, and coincided with the additional time and attention the clinical instructors had to give the junior students in their first year of the course.

In fairness to both the alternative students and the trained nursing staff of Glasgow Royal Infirmary and other outside hospitals visited, it should be noted that even in the earlier part of the course the clinical instructors were only with individual students for a limited period of time, as they had to move from ward to ward carrying out their programme of instruction. So that, under this system, for long periods of time the alternative students were

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1. This clinical instruction book was signed throughout the course indicating the range of nursing techniques learned by the individual alternative student. It was maintained in addition to the official General Nursing Council record of practical procedures kept for all student nurses preparing for the Final State Examination.

directed by the ward sisters and staff nurses, and duties were allocated to them along with the other regular students or auxiliary nursing staff.

For the regular students there were no clinical instructors available in Glasgow Royal Infirmary during the course of this experiment, so that these students had to gain their practical experience as best they could whenever the ward sister, staff nurse or a senior student colleague had time to demonstrate or assist. This is the usual procedure in the working of the traditional apprenticeship system.

There was, however, one important aspect of practical nursing experience which received little attention in the experiment. No serious attempt was made to develop the concept of team or group assignment nursing as an alternative method to job-assignment nursing usually practised in hospitals in this country. It had been admitted by the Steering Committee that, whilst preferring to use the team assignment method of patient care, they considered that it would be difficult to do so with the facilities at their disposal.[1] Team nursing does necessitate the use of more personnel and requires more time for teaching than the usual job-assignment method generally practised in hospitals, and the difficulty of

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1. Team nursing is the use of a group of nurses to undertake the total nursing care of a certain limited number of patients.
   Job-assignment nursing is the allocation of one nursing task to one student to carry out for a whole ward of patients.

making such different arrangements in this large and busy hospital were obvious.

The opportunity of making a small-scale experiment on these lines did, however, seem to present itself towards the end of the third year when groups of alternative students were working together on one or two general wards. Although for a few weeks alternative students in the first and second, as well as the interne year of the course, were divided into two teams on two different surgical wards no effective team nursing was practised. This was partly due to the fact that these nurses, with the exception of the internes, had to be recalled to the classroom at least once a week, and were only available to give a maximum of thirty-two hours service per week to the wards. It was also apparent that the structure of the wards in Glasgow Royal Infirmary was not well suited to this form of nursing,as they all had toilet annexes at one end and kitchens at the other, which always makes it difficult to establish a realistic pattern of communication between a group of patients and a nursing team. After a trial period of a few weeks this policy had to be abandoned, which was disappointing in view of the fact that it is becoming more important to introduce student nurses to the concept of team nursing as smaller ward units and individual cubicles are constructed in the new and modernised hospitals.

CHAPTER VII

## An Analysis of the Characteristics of the Alternative & Control Students

### The Composition of the Alternative & Control Groups

The importance of establishing control groups of students in Glasgow Royal Infirmary and Edinburgh Royal Infirmary who could be used as a yardstick for the measurement of the achievement and progress of the alternative students has already been mentioned.[1]

It will be recalled that although the experiment had begun in September, 1956 the process of evaluation could not be commenced until the summer of 1957. For this reason the establishment of the control groups of nurses for this study was necessarily a retrospective procedure, including students commencing their course as early as August and September, 1955, when no thought had been given to their participation in this evaluation. Consequently, in a number of respects, the control groups do not match the alternative group exactly. To have eliminated such differences, however, it would have been necessary to match the two groups of students by personal and educational characteristics before the experiment began.

As specified in the plans of the experiment, seventy-five alternative students in all were recruited over the three-year period, twenty-four commencing the course in September, 1956, twenty-six in September, 1957, and twenty-five in September, 1958.

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1. See Chapter V, pp. 68-72

These nurses would, therefore, be eligible to take their Final State Examination in October, 1958, October, 1959 and October, 1960 respectively. This examination was taken as the central consideration in planning the establishment of the control groups of students, which consisted accordingly of all the students commencing their course in Glasgow Royal Infirmary in August and September, 1955, August and September, 1956, and August and September, 1957, all of whom would be eligible, if their records in relation to health and performance were satisfactory, to take the Final State Examination on the same three occasions as the alternative students. The Edinburgh Royal Infirmary control groups commenced their course at similar times.

In the establishment of the groups it was also decided that it would be advisable to include the pre-nursing school students in the same hospitals, who would be taking the full-three-year course at the same time, since they usually represented somewhere between 20 to 30 per cent. of the student population in these hospitals. These pre-nursing students had nearly all left school at fifteen or sixteen years of age, but had attended a pre-nursing college for at least a year. Most of them had taken a two-year course at these colleges, which prepared them for the theoretical papers of Part I of the General Nursing Council's Preliminary State Examination and in addition certain other school curriculum subjects were usually continued, though not to School Leaving Certificate standard. On entering the hospital training school, however, these students had

to complete the full three-year general nursing course, and had no previous practical nursing experience.

There were a few students entering these two hospitals at these particular times who were excluded from these control groups, as they had already acquired another nursing qualification such as the Sick Children's or Infectious Diseases certificates of the General Nursing Council and therefore had only two years general training to undertake. It will also be seen from Table 12 that a few other students had certificates of the Scottish Nursery Nurses Examination Board or the Orthopaedic Nursing Certificate, but these students were included in the control groups as they had still to complete the three-year course in a general hospital.

In the following tables in this and later chapters the control students are frequently divided into two groups. One group is classified as the 'regular' control and is composed of all those students who have not previously attended a pre-nursing school; but because of the notably different characteristics of this latter group they have been frequently classified separately as the 'pre-nursing' controls. Both the control groups together are labelled throughout the study as 'combined' controls.

The following table indicates the number of alternative and control students included in this evaluation study.

Table 8 Date of Commencement of Course and number of Alternative and Control Students in the Evaluation Study

| | | | Glasgow Royal Infirmary | | Edinburgh Royal Infirmary | |
|---|---|---|---|---|---|---|
| | Date of Commencement of Course | Alternative Students | Regular Control | P.N.S. Control | Regular Control | P.N.S. Control |
| 1st group of students eligible to take Final State Examination in October, 1958 | August, 1955 | - | 23 | 11 | - | 28 |
| | September, 1955 | - | 24 | - | 26 | - |
| | September, 1956 | 24 | - | - | - | - |
| 2nd group of students eligible to take Final State Examination in October, 1959 | August, 1956 | - | 17 | 19 | - | 17 |
| | September, 1956 | - | 6 | - | 48 | - |
| | September, 1957 | 26 | - | - | - | - |
| 3rd group of students eligible to take Final State Examination in October, 1960 | August, 1957 | - | 23 | 20 | - | 19 |
| | September, 1957 | - | 25 | - | 49 | - |
| | September, 1958 | 25 | - | - | - | - |
| Total number of students in each group | | 75 | 118 | 50 | 123 | 64 |

This is the Final State Examination of the General Nursing Council for Scotland.

P.N.S. refers to Pre-Nursing students.

One further point must be mentioned regarding the composition of the control goups. It will be noted later in this study that on certain occasions it was quite impossible to carry out all the evaluation procedures on the original group of control students. For instance, some might have left the hospital, or a few might be off sick or on duties which made their participation impractible on a particular occasion. In such cases other nurses at a similar

stage in their course were asked to take their place in one special aspect of the study; but these discrepancies will be noted and explained whenever necessary.

The Educational and Personal Background of the Alternative and Control Students.

Much discussion had taken place in the Steering Committee as to the type of student required for the experimental course. It was naturally appreciated that reasonable consideration would have to be given to the educational standards of these students, as they would have to assimilate more theory over a shorter period of time, and also be able to do some study for themselves during the course. It was equally felt that it would not be a good policy to recruit atypical students, since the analysis of the accomplishments of an experimental group would be of greater significance if they could be related to national standards. The official recruitment policy of the Steering Committee was finally stated as follows.

> "The age requirement for students in this experiment should not be less than eighteen and preferably not more than twenty-five. The course will be intensive, and whilst the danger of recruiting an atypical group must be guarded against, it will be necessary to secure a certain average level of intelligence so that the experiment can work reasonably smoothly. It may, therefore, be necessary to have an educational test for those applicants who do not already possess an adequate Higher Leaving Certificate or its equivalent."[1]

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1. Report of Steering Committee of Scottish Health Services Council (unpublished document).

A considerable degree of atypicality, however, in the composition of the alternative groups has to be noted, if they are compared with the control students even in their own hospital. This difference is most noticeable in relation to their educational background, which is illustrated in Table 9. The other tables 10 to 13 inclusive, indicate the school leaving age, nursing age and previous experience of the alternative and the control students respectively.

**Table 9** **Percentage of Alternative & Control Students with School Leaving Certificate**

| Educational Standard achieved at School | Alternative Students | Glasgow Royal Infirmary | | | Edinburgh Royal Infirmary | | |
|---|---|---|---|---|---|---|---|
| | | Regular Control | P.N.S.* Control | Combined Control | Regular Control | P.N.S.* Control | Combined Control |
| | % | % | % | % | % | % | % |
| School Leaving Certificate with University Entrance | 22.7 | 6.0 | - | 4.1 | 13.8 | - | 9.0 |
| School Leaving Certificate without University Entrance | 73.3 | 40.2 | 2.0 | 28.6 | 78.0 | 12.5 | 55.6 |
| NO School Leaving Certificate | 4.0 | 53.8 | 98.0 | 67.3 | 8.2 | 87.5 | 35.4 |
| Total Percentage | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Total Number of Students in Group | 75 | 118 | 50 | 168 | 122 | 64 | 187 |

N.B. Five of the alternative students (6.6%) and one of the Edinburgh Royal Infirmary students already possess a university degree.

* P.N.S. refers to pre-nursing school students.

Table 10 Age of Alternative & Control Students at the Commencement of the Course

| Age of Students at Commencement of Course | Alternative Students | Glasgow Royal Infirmary | | | Edinburgh Royal Infirmary | | |
|---|---|---|---|---|---|---|---|
| | | Regular Control | P.N.S.* Control | Combined Control | Regular Control | P.N.S.* Control | Combined Control |
| | % | % | % | % | % | % | % |
| students commencing at 17.6 - 18.0 | 20.8 | 20.3 | 48.0 | 28.6 | 1.7 | 21.9 | 8.6 |
| students commencing at 18.1 - 18.6 | 40.0 | 35.6 | 34.0 | 35.1 | 66.5 | 56.2 | 63.1 |
| students commencing at 18.7 - 19.0 | 20.0 | 17.0 | 16.0 | 16.1 | 17.9 | 21.9 | 19.8 |
| students commencing at 19.1 - 20.0 | 5.3 | 11.0 | 2.0 | 8.9 | 4.9 | - | 3.2 |
| students commencing at 20.1 - 25.0 | 13.3 | 14.4 | - | 10.1 | 8.2 | - | 5.3 |
| students commencing over 25 years | 1.4 | 1.7 | - | 1.2 | 0.8 | - | 0.5 |
| Total Percentage | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Total No. of students in group | 75 | 118 | 50 | 168 | 123 | 64 | 187 |

* P.N.S. refers to pre-nursing school students.

Table 11 Type of Job held by Alternative and Control Students after leaving School

| Type of Jobs held | Alternative Students | Glasgow Royal Infirmary | | | Edinburgh Royal Infirmary | | |
|---|---|---|---|---|---|---|---|
| | | Regular Control | P.N.S.* Control | Combined Control | Regular Control | P.N.S.* Control | Combined Control |
| | No. | No. | No. | No. | No. | No. | No. |
| Office or clerical jobs | 9 | 42 | 1 | 43 | 15 | - | 15 |
| shop assistants | 2 | 16 | - | 16 | 1 | - | 1 |
| domestic or factory work | 4 | 1 | - | 1 | 2 | - | 2 |
| semi-professional work | - | 4 | 1 | 5 | 2 | - | 2 |
| uniform jobs (Forces) | - | 1 | - | 1 | 1 | - | 1 |
| professional jobs | 1 | 1 | - | 1 | 1 | - | 1 |
| Total No. who have held any kind of jobs | 15 | 61 | 2 | 63 | 20 | - | 20 |
| Total No. of students in group | 75 | 118 | 50 | 168 | 123 | 64 | 187 |
| Percentage of group who have done jobs | 20.0% | 51.7% | 4.0% | 37.5% | 16.2% | - | 10.7% |

N.B. A few of these students have held more than one job and therefore the number of jobs enumerated frequently exceed the total number of students listed as having done a job.

* P.N.S. refers to pre-nursing school students.

Table 12 The Number of Alternative & Control Students who have previously passed official Nursing Examinations

| Type of Examination passed | Alternative Students | Glasgow Royal Infirmary | | | Edinburgh Royal Infirmary | | |
|---|---|---|---|---|---|---|---|
| | | Regular Control | P.N.S.* Control | Combined Control | Regular Control | P.N.S.* Control | Combined Control |
| | No. | No. | No. | No. | No. | No. | No. |
| students who have passed P.S.E. Pt. I ** | - | - | 49 | 49 | - | 60 | 60 |
| students who have S.N.N.E.B. or O.N.C. *** | 1 | 9 | - | 9 | - | - | - |
| students who have NOT passed official nursing examination | 74 | 109 | 1 | 110 | 123 | 4 | 127 |
| Total number of students in group | 75 | 118 | 50 | 168 | 123 | 64 | 187 |
| Percentage who have passed official examination | 1.3% | 7.6% | 98.0% | 34.5% | - | 93.7% | 32.1% |

* P.N.S. refers to pre-nursing school students.

** P.S.E Pt. I refers to Preliminary State Examination Part I of the General Nursing Council which is taken by nearly all students attending the pre-nursing schools.

*** O.N.C. refers to Orthopaedic Nursing Certificate
S.N.N.E.B. refers to Scottish Nursery Nurses Examinations Board

Table 18 — Students in Alternative & Control groups who have had previous hospital nursing experience

| Previous Nursing Experience | Alternative Students | Glasgow Royal Infirmary | | | Edinburgh Royal Infirmary | | |
|---|---|---|---|---|---|---|---|
| | | Regular Control | P.N.S.* Control | Combined Control | Regular Control | P.N.S.* Control | Combined Control |
| | No. | No. | No. | No. | No. | No. | No. |
| as trained or student nurses | 1 | 10 | - | 10 | 1 | - | 1 |
| as auxiliaries or ward orderlies | 11 | 14 | 1 | 15 | 10 | - | 10 |
| as Red Cross cadets or in N.H.S.R. ** | 1 | 4 | - | 4 | 2 | - | 2 |
| students who had NO nursing experience | 62 | 90 | 49 | 139 | 110 | 64 | 174 |
| Total No. of students in group | 75 | 118 | 50 | 168 | 123 | 64 | 187 |
| Percentage of students with nursing experience | 17.3% | 23.7% | 2.0% | 17.3% | 10.5% | - | 6.9% |

* refers to pre-nursing school students.

** N.H.S.R. refers to National Hospital Service Reserve nurses, who give a specified number of hours of service in hospital wards over a period of time to learn some basic nursing in case of a national emergency.

From Table 9 it will be seen that the alternative students as a group are similar educationally to the Edinburgh Royal Infirmary regular control only. The Glasgow Royal Infirmary regular control group, however, fall somewhere between the comparatively high educational level of the alternative students and the two pre-nursing school groups at the other extreme. On the other hand, Table 10 illustrates considerably more homogeneity in the age of the Edinburgh Royal Infirmary controls than in either the Glasgow alternative or control groups. Such a difference might be a matter of coincidence rather than a planned difference in policy, since the entrance age preference of eighteen to twenty-five years was similar for all these groups of students. Quite a number of students in the alternative and Glasgow Royal Infirmary control groups had, however, commenced before the age of eighteen, whereas only a very few of them in any group were over twenty-five years of age at the beginning of their course.

Tables 11 to 13, however, show no such clear cut differentiation between the alternative and control groups. Table 11 illustrates that, with the exception of the Glasgow Royal Infirmary regular control group, the majority of the students have not previously had any regular paid employment. Very few of either the alternative or control students have passed any nursing examination before coming into their course, with the notable exception of the pre-nursing school students nearly all of whom passed the first part of the Preliminary State Examination before leaving their pre-

nursing school. A few students had also passed the Scottish Nursery Nurses' Examination or the Orthopaedic Nursing Certificate both of which are two-year courses outside the auspices of the General Nursing Council. Similarly, Table 11 shows that over 75 per cent. of the alternative and control students have not done any nursing in hospital wards before starting their course, and these who have done such work have nearly all been employed as nursing auxiliaries, ward orderlies or cadets.

The Recruitment of Students for the Alternative and Control Courses

The Steering Committee, as already noted, had laid down some general principles for the selection of students for the experimental course. At the same time, however, it must be remembered that this course was to take place in one of Scotland's largest schools for student nurses. Approximately twenty-five students are recruited for this hospital at six-weekly intervals between August of one year and June of the next year, so that something like a hundred and ten to a hundred and fifty students enter this school of nursing annually. This factor has had a considerable bearing upon recruitment for the experimental course, in so far as the Matron of the hospital repeatedly stated her intention of maintaining as far as possible the usual standard of ability amongst the regular intake of students for the three-year course, despite the existence of the experimental course.

The official method of recruitment for alternative and

control students in Glasgow Royal Infirmary was similar. Candidates for both courses were interviewed by the Matron of the hospital, if their application forms and two references had been considered satisfactory. Applicants for the alternative course were also seen by the Director of the Experimental School and students for the regular course by the Principal Tutor of the School of Nursing in Glasgow Royal Infirmary. Candidates of both groups were also expected to carry out the National Institute of Industrial Psychology Group Test 33,[1] and the candidates applying for the regular course who had no school leaving certificate were also asked to complete in addition a short test which included an essay, spelling and arithmetic.

In both courses candidates with scores in the intelligence test below 100 were not as a rule eligible, but in fact, as can be seen from Table 14, quite a few (17.2 per cent.) were given a place in the three-year school, whilst in the three alternative groups no students had a score below 100 and only 4 per cent. had scores between 100 and 109. As the Matron indicated, however, there are various reasons for permitting these educationally doubtful candidates to commence the regular course. There is at the moment

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1. The N.I.I.P. Group Test 33 is a primarily verbal group test of general intelligence, designed by the National Institute of Industrial Psychology. It was designed initially for use in vocational guidance and has been applied to many thousands of secondary school leavers and young adults.

no statutory entrance standard for student nurses, and every hospital is, therefore, at liberty to select for itself the candidates considered to be most suitable. Thus allowances are frequently made for candidates with relatives who have trained at the same hospital, or for those whose personality and enthusiasm seem to make good an apparent intellectual deficiency.

**Table 14** **Distribution of the Intelligence Scores of the Alternative & Control Students in Glasgow Royal Infirmary in the National Institute of Industrial Psychology Group Test 33**

| Score | Alternative Students | | Glasgow Royal Infirmary ** Regular Control | | P.N.S.* Control | | Combined Control | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| 180 - 190 | 1 | 1.3 | - | - | - | - | - | - |
| 170 - 179 | 3 | 4.0 | - | - | - | - | - | - |
| 160 - 169 | 7 | 9.4 | - | - | - | - | - | - |
| 150 - 159 | 7 | 9.4 | 4 | 5.6 | 2 | 5.1 | 6 | 5.4 |
| 140 - 149 | 15 | 20.0 | 10 | 14.1 | 6 | 15.4 | 16 | 14.5 |
| 130 - 139 | 21 | 28.0 | 17 | 23.9 | 3 | 7.7 | 20 | 18.1 |
| 120 - 129 | 13 | 17.3 | 14 | 19.8 | 7 | 17.9 | 21 | 19.1 |
| 110 - 119 | 5 | 6.6 | 14 | 19.8 | 6 | 1 5.4 | 20 | 18.1 |
| 100 - 109 | 3 | 4.0 | 4 | 5.6 | 3 | 7.7 | 7 | 6.5 |
| 90 - 99 | - | - | 5 | 7.0 | 6 | 15.4 | 11 | 10.2 |
| 80 - 89 | - | - | 2 | 2.8 | 4 | 10.2 | 6 | 5.4 |
| 70 - 79 | - | - | - | - | 1 | 2.6 | 1 | 0.9 |
| 60 - 69 | - | - | - | - | 1 | 2.6 | 1 | 0.9 |
| score unknown | - | - | 1 | 1.4 | - | - | 1 | 0.9 |
| Total students & Percentages | 75 | 100.0 | 71 | 100.0 | 39 | 100.0 | 110 | 100.0 |

* P.N.S. refers to pre-nursing school students.

** The scores for the control group relate only to the 1956 and 1957 groups, as a different test had been used in 1955 for these students.

Not only, however, was the composition of the control group affected by these more personal considerations, but its strength was further diluted by the need to recruit suitable students for the experimental course. For various reasons it proved difficult to get sufficient adequately qualified students for each intake, and consequently the strength of the controls was further reduced by transfer to the experimental course. It so happened that some applicants who had been accepted for the regular course in September, 1956 and September, 1958 had to be transferred to the alternative school, because there were not enough suitable candidates for that course in these years. In 1956, for instance, it was not possible to recruit all twenty-four of the alternative students required by the September of that year, as publicity and financial arrangements for the new course could not be made as early as anticipated.

Some applicants for the regular course, therefore, had to be invited to join the experimental course. In fact only thirteen students of the first alternative group were recruited by direct application, the other eleven students were all previously accepted for the three-year course, but all agreed, on invitation by the Matron, to take the experimental course instead. For the second group of alternative students there were sufficient direct suitable applications to fill all the twenty-six vacancies in September, 1957, but in September, 1958 it was again necessary to 'co-opt' some of

the three-year candidates for the experimental course. There were twenty-five applicants for this last intake only fifteen of whom actually commenced the course, so that another ten students in this instance had to be transferred from the regular course applicants.

The following table illustrates the total number of enquiries made about the experimental course from the time of its inauguration, and the number of applicants who actually took the course each year. It will be noted that the number of applications has diminished as the experiment proceeded. Most of these applications whether seriously pursued or not were, however, made by girls with good educational qualifications, and quite a few of them were in their twenties. The hospital, therefore, as illustrated in Table 15, only had to reject a very small number of them as being unsuitable on the grounds of education, health or age.

Table 15 Number of Applications received, accepted, withdrawn and rejected for the Experimental Course

| | Sept. 1956 Course | Sept. 1957 Course | Sept. 1958 Course | ** 1959 |
|---|---|---|---|---|
| Total number of applications for course | 50 | 38 | 25 | 6 |
| Number of applications not pursued after first letter | 27 | 9 | 6 | - |
| Number of applications withdrawn after completion of application form | 7 | 2 | 2 | 2 |
| Number of applications turned down by hospital | 3 | 1 | 2 | 4 |
| Number of direct applicants accepted for Course | 13 | 26 | 15 | - |
| Number transferred from regular course | 11 | - | 10 | - |
| Total number of students in group | 24 | 26 | 25 | - |

** A few applications were also received for 1959, although there were no plans to recruit students for a fourth intake.

The considerable difference in the numbers of students in the alternative and control groups possessing a school leaving certificate has already been noted in Table 9, and a similar difference in the intelligence tests scores is evident in Table 14. There is no doubt that this lack of balance between the two groups was partly caused by the transfer of students from the regular course in 1956 and in 1958. Of the twenty-one students known to be transferred all had a school leaving certificate and only one had an intelligence score below 115. The conclusion has to be drawn inevitably, therefore, that there was quite a considerable 'feed' of specially selected students into the experimental course, in spite of the official selection policy to recruit students separately for the two courses, and that this transfer served to heighten the intellectual atypicality of the alternative students.

Why there was this paucity of suitable applicants for the experiment is difficult to answer. It takes a little time for such a new course to become known to sufficient numbers of interested and influential people, but once started it should gather strength of numbers from its own momentum. In fact, there was no great rush of suitable applicants available even for the 1958 course. The students themselves said that they had heard of the course in various ways. Most of them had read the advertisements which appeared in the national and professional press and other articles in the nursing press relating to its planning and objectives.

Others had heard about the alternative course at school since senior secondary and girls' grammar schools in the Glasgow area had been informed of its commencement, and schools in other parts of the British Isles were visited later by the Director of the Experimental Course at the invitation of the headmistresses. Another group had been recommended to apply by doctors or nurses they knew in Glasgow Royal Infirmary and other hospitals who could tell them a good deal about the course; and a few of the students in the second and third intakes had been influenced by sisters or friends who had entered the first group. Only small numbers of students were required for this experiment (seventy-five over three years) and so these publicity methods were perhaps adequate, leaving a certain amount to the initiative of those girls interested enough to make intelligent enquiries.

Equally interesting are the reasons why many girls applied during this period to take the regular three-year course rather than the experimental one.[1] Quite a number of them obviously had not read or heard about it at all, and, therefore, had no chance of considering whether they would like to apply. Some said frankly that it seemed to them too theoretical, and they preferred the opportunity of spending more time with the patients; and lastly

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1. Several regular students were interviewed informally during the first year of their course to get their views on this matter.

there were one or two who said they thought the new course was too academic and would prove too great an educational hurdle for them over a two-year period.

Although this detailed account of selection has only so far related to students entering the experimental and control courses in Glasgow Royal Infirmary, the candidates for Edinburgh Royal Infirmary underwent a similar selection procedure. It can be seen from Table 9 that a higher proportion of them possessed a school leaving certificate than the Glasgow control students. Unfortunately, they took a different intelligence test from the Glasgow Royal Infirmary candidates, so that no comparison of such data was possible. Until recently the Moray House (Edinburgh) Test was used, but since 1957 the Otis Intermediate Test for Schools and the General Nursing Council (England and Wales) entrance tests have been used at various times. It is, therefore, not possible to compare these intelligence test results with those of students entering the alternative and control groups in Glasgow Royal Infirmary, but, as indicated earlier, educationally the Edinburgh Royal Infirmary regular group of students approximated fairly closely to the alternative group. They also had the advantage that none of them could be invited to join the experimental course, and therefore, there was no additional dilution of their intellectual abilities as had happened with the Glasgow Royal Infirmary control group.

It should be noted that in both Edinburgh and Glasgow Royal Infirmaries quite a number of the control nurses had attended pre-nursing schools. In both hospitals it is customary to recruit students from the pre-nursing schools into a separate Preliminary Training School in July or August of each year, and their different educational background has already been noted. They underwent the same selection procedure as other students entering these two hospitals, and there was considerable competition among them to be chosen for these teaching hospitals.

## SECTION IV

## CHAPTER VIII The Performance of the Alternative and Control Students in the General Nursing Council Final State Examinations.

The chapters in this section relate to the performance of both the alternative and control students up to the completion of their Final State Examination. Some of the data analysed are based on specially-designed records whilst others have been collated from routine records already in existence. In this present chapter the performance of the alternative and control students in the Final State Examination will be discussed. This particular test, as already explained, was the one routine situation in which the standard of the two groups of students could be directly compared, but in order to make a closer comparison of these examination results, certain specially-designed procedures had to be introduced.

For various reasons the Final State Examination was a vital landmark in this study. Firstly, it will be remembered that one of the principal objectives of the experiment was to see if the alternative students could successfully complete the basic general syllabus of the General Nursing Council in two instead of three years. Secondly, this examination was the only comparable one taken by both the alternative and control groups of students in their entire course. Other examinations and tests were set for the alternative and regular Glasgow Royal Infirmary students at various

times by internal examiners, but as Table 4 illustrates the timing and number of lectures available to the two groups was a variable factor almost without exception, so that little use could be made of these hospital tests for comparative purposes.

An approach was, therefore, made to the Scottish General Nursing Council to ask whether additional data on the performance of all alternative and control students taking the Final State Examination could be made available. The information routinely provided by the Council indicates only whether a student passes or fails, and since this examination is taken by thousands of students in Scotland three times a year these papers must of necessity be marked by a large team of General Nursing Council examiners - surgeons, physicians and nurse-tutors. The Council were asked, therefore, if a re-marking of the papers of all the students in this study could be undertaken each year by one surgeon, one physician and one nurse-tutor, so that a more exact standard of achievement could be indicated.

This unprecedented request was generously granted by the General Nursing Council, and arrangements were made immediately for all the papers to be re-marked by one specialist in each subject, so that the marking standard would remain constant during the course of the experiment. There were a hundred alternative and control students taking the examination in October, 1958, a hundred and one in October, 1959 and a hundred and eleven are due to take the October, 1960 examination, so that on each occasion this re-marking has proved

to be quite a formidable operation. It should also be noted that no such second marking could affect the official result of the examination notified to all hospitals and students concerned; and that whilst the theoretical part of the examination, the written papers in medicine, surgery and nursing, could be re-marked, only the original marking of the practical examination was available. For this reason the practical examination results are tabled and commented upon separately wherever possible.

The General Nursing Council did not consider that, even under these special circumstances, they should make the actual marks available to the evaluators, but they released two separate sets of information. Firstly, the result of the re-marking of every student's paper in each part of the examination was graded on the following scale and this information was made available:

| | | |
|---|---|---|
| | Grade A | 70% - 100% |
| | Grade B | 60% - 69% |
| | Grade C | 50% - 59% |
| These grades signified failure. | Grade D | 10% - 49% |
| | Grade E | 0% - 9% |

Secondly, an order of merit list also based on the re-marking was provided giving the ranking of all the alternative and control students in each aspect of the examination, so that the distribution of the experimental students could be studied in relation to all the control groups.

Before making any study of the results of this re-marking it is as well to consider in the first place the number of students in the alternative and control groups who were eligible to take the Final State Examination. A detailed account of sickness absence and wastage will be given in Chapter XI, but it is relevant to note here that amongst the control groups under consideration there were quite a number of students who had left before taking the examination, and others who were disallowed from taking it because they had exceeded the statutory length of sickness absence permitted by the General Nursing Council, and would have to take their 'finals' at a later date. This regulation regarding sickness absence, it will be remembered, did not apply to the alternative students, so long as any lectures missed were made up before taking the examination. Table 16 illustrates the considerable difference in the percentage of alternative and control students eligible to take their Final State Examination without any deferment.[1]

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1. The following abbreviations have been used in all the tables in this chapter and the following chapters of this study:

   G.R.I. = Glasgow Royal Infirmary
   E.R.I. = Edinburgh Royal Infirmary
   P.N.S. = pre-nursing school (students)
   F.S.E. = Final State Examination (of the General Nursing Council)
   O.M. = Order of Merit (achieved in the Final State Examination)

Table 16 The Percentage of Alternative & Control students eligible to take the Final State Examination without deferment

| | | Total No. Students Commencing Course | No. Students leaving before taking F.S.E. | No. Students not allowed to take F.S.E. | Percentage of Total taking F.S.E. |
|---|---|---|---|---|---|
| 1958 | Alternative Students | 24 | NIL | NIL | 100% |
| | G.R.I. * controls | 58 | 12 | 11 | 60.3% |
| | E.R.I. * controls | 54 | 8 | 5 | 75.9% |
| 1959 | Alternative students | 26 | NIL | NIL | 100% |
| | G.R.I. controls | 42 | 6 | 5 | 74.8% |
| | E.R.I. controls | 65 | 12 | 9 | 67.7% |
| 1960 * * | Alternative students | 25 | 3 | NIL | 88.0% |
| | G.R.I. controls | 68 | 9 | 14 | 66.2% |
| | E.R.I. controls | 68 | 11 | 13 | 64.7% |

* Combined controls of regular and pre-nursing school students in this table.

* * The results of the examination taken by these students in October, 1960 are not yet available for analysis.

As far as the official results of the examination were concerned the achievement of all the students in the first two alternative and control groups, whose papers have been re-marked, were very commendable. Only one out of fifty alternative students failed to pass the Final State Examination in 1958 and 1959, whereas in the control groups three Edinburgh Royal Infirmary controls failed the nursing practical examination in 1958, and in the Glasgow Royal Infirmary controls three students failed the medical paper and two failed in practical nursing in 1959. Altogether one hundred and ninety-three out of two hundred and one control students passed these two Final State Examinations, so that over these two years 98 per cent. of the alternative students passed compared with 96 per cent. of the controls. Although the failure rate amongst both groups of students were minimal, it must be remembered that the examination was taken by 100 per cent. of the alternative students in October 1958 and 1959, whereas only 60 and 75 per cent. of the control students respectively were eligible to take the examinations. The remaining control students had either previously discontinued their training or had exceeded the official amount of sick leave permitted by the General Nursing Council.

Discussion of the re-marked Final State Examination papers will relate firstly to the performance of the students in their groups, that is the alternative vis-a-vis the regular and pre-nursing school control students in Glasgow Royal Infirmary and Edinburgh Royal Infirmary; and secondly, their achievements will be reviewed

in terms of their educational and intellectual characteristics. Where numbers permit the pre-nursing school control students will be reviewed separately since, as already indicated, their school leaving age and education background differed considerably from that of the regular control nurses.

The following tables, Nos. 17 to 20, illustrate the standard achieved by these various student groups in the October, 1958 and 1959 Final State Examinations in terms of the grade allocated as a result of the re-marking of the papers.

It should be noted that some of the grades have been combined in these tables, as in the case of the practical examination in particular the numbers failing in individual grades were very small and had to be grouped in order to carry out tests of significance.

**Table 17** The Grading of Alternative & Control Students' Marks in the Final State Examination

**October 1958**

| Subject | Category of Students | Grading in Final State Examination | | | | No. of Papers re-marked |
|---|---|---|---|---|---|---|
| | | A % | B % | C & D % | Total % | |
| Written Papers in Surgery, Medicine & Nursing | Alternatives | 20.8 | 66.7 | 12.5 | 100.0 | 72 |
| | All Controls | 21.9 | 56.2 | 21.9 | 100.0 | 228 |
| | G.R.I. & E.R.I. regular controls | 26.0 | 58.6 | 15.4 | 100.0 | 150 |
| | G.R.I. & E.R.I. P.N.S. controls | 14.1 | 51.3 | 34.6 | 100.0 | 78 |
| Nursing Practical (NOT Re-marked) | Alternatives | 79.1 | 20.9 | | 100.0 | 24 |
| | All Controls | 38.2 | 61.8 | | 100.0 | 76 |
| | G.R.I. & E.R.I. Regular controls | 40.0 | 60.0 | | 100.0 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 34.6 | 65.4 | | 100.0 | 26 |

G.R.I. refers to Glasgow Royal Infirmary.

E.R.I. refers to Edinburgh Royal Infirmary.

P.N.S. refers to pre-nursing school.

No. of students in B (failure) category in above table:

2 regular control students } failed in Nursing Practical Examination.

1 pre-nursing school control student }

Table 18 The Grading of Alternative & Control Students' Marks in the Final State Examination

October 1959

| Subject | Category of Students | Grading in Final State Examination | | | | No. of Papers Re-Marked |
|---|---|---|---|---|---|---|
| | | A % | B % | C & D % | Total % | |
| Written Papers in Surgery, Medicine & Nursing | Alternatives | 41.0 | 47.4 | 11.6 | 100.0 | 78 |
| | All Controls | 24.9 | 50.2 | 24.9 | 100.0 | 225 |
| | G.R.I. & E.R.I. Regular Controls | 29.0 | 47.1 | 23.9 | 100.0 | 138 |
| | G.R.I. & E.R.I. P.N.S. Controls | 18.4 | 55.2 | 26.4 | 100.0 | 87 |
| Nursing Practical (NOT Re-Marked) | Alternatives | 69.2 | 30.8 | | 100.0 | 26 |
| | All Controls | 80.0 | 20.0 | | 100.0 | 75 |
| | G.R.I. & E.R.I. Regular Controls | 73.9 | 26.1 | | 100.0 | 46 |
| | G.R.I. & E.R.I. P.N.S. Controls | 89.7 | 10.3 | | 100.0 | 29 |

G.R.I. refers to Glasgow Royal Infirmary.

E.R.I. refers to Edinburgh Royal Infirmary.

P.N.S. refers to pre-nursing school.

No. of students in D ( failure) category in above table:

3 regular control students - failed in medical paper

2 regular control students ) - failed in nursing practical

1 alternative student ) examination

These tables illustrate not only the commendable performance of the alternative students in passing the examination, but reveal in greater detail some of the reasons underlying this achievement. One notable feature is that on every occasion, with one exception, the alternatives have a smaller percentage of their group graded in the C (and D)[1] categories, whether they are compared with all the control students or the regular and pre-nursing groups separately. It is, therefore, evident that as a group they have passed the examination with a wider margin of marks than the control groups. The exceptional situation arises in the 1959 practical nursing examination when the alternative students were not rated nearly as highly as any of the control groups. It is difficult, however, to attempt any explanation of this sudden drop in their standard, since the practical examination could not be re-marked, and was held in one centre for the alternative students and Glasgow Royal Infirmary controls and in another centre for the Edinburgh Royal Infirmary controls. Moreover the nurses conducting these practicals in each centre varied slightly during the course of the examinations.

Closer inspection of tables 17 and 18 reveals another interesting trend. In the written papers in both years the

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1. It has been illustrated in tables Nos. 17 and 18 that only one alternative student had Grade D in the 1959 nursing practical examination.

regular control students have achieved a grading considerably closer to the alternative group than have the pre-nursing school controls. Although the alternative students' performance was somewhat better in both years than the regular controls, in neither year did it achieve a level of technical significance (1958 $X^2$ = .70>P>.50 and 1959 $X^2$= .10>P>.05). When the results of the alternative and pre-nursing control students were compared, however, not only was the difference more apparent, but the chi-square tests were significant (1958 and 1959 $X^2$= .01>P>.001). It seems apparent that the considerably less satisfactory grading achieved by all the control students compared with the alternatives is attributable principally to the less satisfactory grading of the pre-nursing control groups.

It is not possible to draw similar inferences from the grading achieved by any of the students in the practical nursing examination, because, as already explained, the circumstances and surroundings were variable and in addition no re-marking could be carried out. In fact, the alternative students performed significantly better than the regular, pre-nursing or combined control groups in 1958 - $X^2$= .01>P>.001, .01>P>.001 and .001>P for the three significance tests respectively. But in the next year the results were exactly reversed, although in this instance the higher grading achieved by the regular, pre-nursing and combined controls vis-a-vis the alternatives did not reach levels of technical significance - $X^2$= 70>P>.50, .10>P>.05 and .30>P>.20 respectively.

It is, nevertheless, difficult on the basis of these data to know to what extent variation in performance in either year was due to a real difference in the abilities of the two groups concerned or attributable to differences in examination personnel and surroundings.

The main conclusion to be drawn from these tables appears to be that in the theoretical part of the examination a large part of the difference between the alternative and control students is due to the poorer performance of the pre-nursing controls. When these particular students are omitted from the comparison the alternative students' standard was barely superior to the regular controls in 1958 and only moderately so in 1959.

A more detailed analysis of the performance by grade in these examinations is given in the next tables, Nos. 19 and 20, where a grading for each subject, both written and practical, is included. It will be seen from the percentages quoted in certain categories that the numbers of students referred to was very small, so that it was not, in this instance, possible to test the significance of these figures.

TABLE 19

The Grading of Alternative & Control Students' Marks in each subject of the Final State Examination

October, 1958

| Subject | Category of Students | Grading in F.S.E. | | | | Total % | No. in Group |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | |
| SURGERY | Alternative | 21.0 | 75.0 | 4.0 | - | 100.0 | 24 |
| | G.R.I. Regular Control | 34.0 | 62.5 | 3.5 | - | 100.0 | 29 |
| | E.R.I. Regular Control | 43.0 | 43.0 | 14.0 | - | 100.0 | 21 |
| | G.R.I., P.N.S. Control | - | 83.5 | 16.5 | - | 100.0 | 6 |
| | E.R.I., P.N.S. Control | 30.0 | 35.0 | 35.0 | - | 100.0 | 20 |
| MEDICINE | Alternative | - | 83.5 | 16.5 | - | 100.0 | 24 |
| | G.R.I. Regular Control | 7.0 | 79.0 | 14.0 | - | 100.0 | 29 |
| | E.R.I. Regular Control | 5.0 | 67.0 | 28.0 | - | 100.0 | 21 |
| | G.R.I., P.N.S. Control | - | 83.5 | 16.5 | - | 100.0 | 6 |
| | E.R.I., P.N.S. Control | 10.0 | 60.0 | 30.0 | - | 100.0 | 20 |
| NURSING WRITTEN | Alternative | 41.5 | 41.5 | 17.0 | - | 100.0 | 24 |
| | G.R.I. Regular Control | 27.0 | 59.0 | 14.0 | - | 100.0 | 29 |
| | E.R.I. Regular Control | 43.0 | 33.0 | 24.0 | - | 100.0 | 21 |
| | G.R.I.,P.N.S. Control | 16.5 | 66.0 | 16.5 | - | 100.0 | 6 |
| | E.R.I., P.N.S. Control | 10.0 | 30.5 | 59.5 | - | 100.0 | 20 |
| NURSING PRACTICAL (not re-Marked) | Alternative | 79.0 | 21.0 | - | - | 100.0 | 24 |
| | G.R.I. Regular Control | 34.0 | 39.0 | 27.0 | - | 100.0 | 29 |
| | E.R.I. Regular Control | 48.0 | 33.0 | 9.5 | 9.5 | 100.0 | 21 |
| | G.R.I., P.N.S. Control | 16.5 | 50.0 | 33.5 | - | 100.0 | 6 |
| | E.R.I., P.N.S. Control | 40.0 | 35.0 | 20.0 | 5.0 | 100.0 | 20 |
| NURSING WRITTEN & PRACTICAL COMBINED | Alternative | 62.5 | 33.5 | 4.5 | - | 100.0 | 24 |
| | G.R.I. Regular Control | 27.0 | 52.0 | 21.0 | - | 100.0 | 29 |
| | E.R.I. Regular Control | 33.0 | 48.0 | 9.5 | 9.5 | 100.0 | 21 |
| | G.R.I., P.N.S. Control | 16.5 | 83.5 | - | - | 100.0 | 6 |
| | E.R.I., P.N.S. Control | 10.0 | 55.0 | 30.0 | 5.0 | 100.0 | 20 |

TABLE 20 The Grading of Alternative & Control Students' Marks in each subject of the Final State Examination

October, 1959

| Subject | Category of Students | Grading in F.S.E. | | | | Total % | No. in Group |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | |
| SURGERY | Alternative | 26.9 | 50.0 | 23.1 | - | 100.0 | 26 |
| | G.R.I. Regular Control | 12.5 | 50.0 | 37.5 | - | 100.0 | 16 |
| | E.R.I. Regular Control | 10.0 | 60.0 | 30.0 | - | 100.0 | 30 |
| | G.R.I., P.N.S. Control | 20.0 | 40.0 | 40.0 | - | 100.0 | 15 |
| | E.R.I., P.N.S. Control | 7.1 | 78.6 | 14.3 | - | 100.0 | 14 |
| MEDICINE | Alternative | 15.6 | 73.7 | 11.7 | - | 100.0 | 26 |
| | G.R.I. Regular Control | 12.5 | 37.5 | 31.2 | 18.8 | 100.0 | 16 |
| | E.R.I. Regular Control | 13.3 | 70.0 | 16.7 | - | 100.0 | 30 |
| | G.R.I., P.N.S. Control | - | 46.7 | 53.3 | - | 100.0 | 15 |
| | E.R.I., P.N.S. Control | 7.1 | 64.3 | 28.6 | - | 100.0 | 14 |
| NURSING WRITTEN | Alternative | 80.4 | 19.6 | - | - | 100.0 | 26 |
| | G.R.I. Regular Control | 68.7 | 18.7 | 12.6 | - | 100.0 | 16 |
| | E.R.I. Regular Control | 60.0 | 30.0 | 10.0 | - | 100.0 | 30 |
| | G.R.I.,P.N.S. Control | 40.0 | 46.7 | 13.3 | - | 100.0 | 15 |
| | E.R.I., P.N.S. Control | 35.8 | 57.1 | 7.1 | - | 100.0 | 14 |
| NURSING PRACTICAL (not re-Marked) | Alternative | 69.2 | 19.4 | 7.6 | 3.8 | 100.0 | 26 |
| | G.R.I. Regular Control | 75.0 | 12.5 | - | 12.5 | 100.0 | 16 |
| | E.R.I. Regular Control | 73.3 | 23.4 | 3.3 | - | 100.0 | 30 |
| | G.R.I., P.N.S. Control | 80.0 | 20.0 | - | - | 100.0 | 15 |
| | E.R.I., P.N.S. Control | 100.0 | - | - | - | 100.0 | 14 |
| NURSING WRITTEN & PRACTICAL COMBINED | Alternative | 73.0 | 23.1 | 3.9 | - | 100.0 | 26 |
| | G.R.I. Regular Control | 62.6 | 18.7 | 18.7 | - | 100.0 | 16 |
| | E.R.I. Regular Control | 66.7 | 30.0 | 3.3 | - | 100.0 | 30 |
| | G.R.I., P.N.S. Control | 60.0 | 40.0 | - | - | 100.0 | 15 |
| | E.R.I., P.N.S. Control | 92.9 | 7.1 | - | - | 100.0 | 14 |

These tables are mainly of interest in illustrating the performance of each sub-group of control students and the exact percentage of students of all groups in every grade. Generally, they confirm the trends already noted in the analysis of the earlier tables 17 and 18.

The other form of data available for analysis were the order of merit lists for each subject provided by the General Nursing Council. The following tables Nos. 21 to 24, have been based on the order of merit averages achieved by the various groups of students in both the 1958 and 1959 examinations. The number of students taking the examination in 1958 was 100; the order of merit, therefore, ranged on this occasion from one to a hundred, but where more than one student achieved the same level then an average rating for that particular group was used. In 1959, one hundred and one students took the examination and the same procedure was used in analysing the order of merit lists. In these tables, therefore, the lowest scores recorded will indicate the highest level of performance and vice versa.

Table 21 The Order of Merit achieved by the Alternative & All other Control Students in the October, 1958 Final State Examination

| Subject | Category of Students | Average Order of Merit (out of 100 students) | S.E. | No. in Group |
|---|---|---|---|---|
| Surgery | Alternatives | 50.4 ± 24.4 | ± 5.1 | 24 |
| | All Controls | 50.5 ± 30.4 | ± 3.5 | 76 |
| Medicine | Alternatives | 48.2 ± 30.1 | ± 7.4 | 24 |
| | All Controls | 51.2 ± 28.6 | ± 3.3 | 76 |
| Nursing Written | Alternatives | 39.8 ± 29.6 | ± 6.2 | 24 |
| | All Controls | 53.9 ± 28.2 | ± 3.2 | 76 |
| Nursing Practical (Not remarked) | Alternatives | 33.1 ± 20.6 | ± 4.3 | 24 |
| | All Controls | 56.0 ± 29.2 | ± 3.4 | 76 |
| Nursing Combined | Alternatives | 34.3 ± 26.8 | ± 5.6 | 24 |
| | All Controls | 55.6 ± 27.9 | ± 3.2 | 76 |

Table 22 The Order of Merit achieved by the Alternative & All Other Control Students in October, 1959 Final State Examination

| Subject | Category of Students | Average Order of Merit (out of 101 students) | S.E. | No. in Group |
|---|---|---|---|---|
| Surgery | Alternatives | 43.6 ± 28.0 | ± 5.6 | 26 |
| | All Controls | 53.4 ± 29.4 | ± 3.4 | 75 |
| Medicine | Alternatives | 39.7 ± 27.0 | ± 5.4 | 26 |
| | All Controls | 54.8 ± 28.9 | ± 3.4 | 75 |
| Nursing Written | Alternatives | 31.2 ± 24.4 | ± 4.9 | 26 |
| | All Controls | 43.4 ± 27.8 | ± 3.2 | 75 |
| Nursing Practical (not re-marked) | Alternatives | 61.7 ± 27.2 | ± 5.4 | 26 |
| | All Controls | 47.3 ± 29.2 | ± 3.4 | 75 |
| Nursing Combined | Alternatives | 44.8 ± 31.9 | ± 6.4 | 26 |
| | All Controls | 53.2 ± 28.2 | ± 3.3 | 75 |

The creditable performance of the alternative students when contrasted with all the control students is quite as clearly indicated by these tables as in the earlier series relating to grading of Final State Examination results. In both 1958 and 1959 the order of merit achieved by the alternative students was significantly higher in the medical paper ($T = .01 > P > .001$ and $T = .02 > P > .01$) respectively; and a significant difference was also found to exist in favour of their performance in the nursing written paper on both occasions ($T = .05 > P > .02$ and $T = .05 > P > .02$). In the surgical paper the means of the two groups were almost identical in 1958, with the alternatives gaining a considerably better, but not significantly higher, order of merit in 1959, ($T = .20 > P > .10$). As far as the practical examination was concerned the same doubts and dilemmas arise as noted earlier; with the alternative students succeeding much better than all the controls in 1958 ($T = .001 > P$) and with the result almost exactly reversed the next year ($T = .05 > P > .02$).

In tables 23 and 24 these same results are presented in greater detail to illustrate the difference in the performance of the alternative and regular and pre-nursing control students.

Table 23

The Order of Merit achieved by Alternative, Regular & Pre-Nursing School Control Students in the October, 1958 Final State Examination.

| Subject | Category of Students | Average Order of Merit (out of 100 students) | S.E. | No. in Group |
|---|---|---|---|---|
| Surgery | Alternatives | 50.4 ± 24.4 | ± 5.1 | 24 |
| | G.R.I. & E.R.I. Regular Controls | 43.9 ± 29.2 | ± 4.2 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 63.3 ± 28.9 | ± 5.8 | 26 |
| Medicine | Alternatives | 48.2 ± 30.1 | ± 7.4 | 24 |
| | G.R.I. & E.R.I. Regular Controls | 47.3 ± 27.4 | ± 3.9 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 58.8 ± 29.9 | ± 5.9 | 26 |
| Nursing Written | Alternatives | 39.8 ± 29.6 | ± 6.2 | 24 |
| | G.R.I. & E.R.I. Regular Controls | 46.4 ± 25.9 | ± 3.7 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 68.2 ± 25.5 | ± 5.1 | 26 |
| Nursing Practical (Not re-marked) | Alternatives | 33.1 ± 20.6 | ± 4.3 | 24 |
| | G.R.I. & E.R.I. Regular Controls | 54.7 ± 29.3 | ± 4.2 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 58.4 ± 29.3 | ± 5.8 | 26 |
| Nursing Combined | Alternatives | 34.3 ± 26.8 | ± 5.6 | 24 |
| | G.R.I. & E.R.I. Regular Controls | 50.6 ± 28.2 | ± 4.0 | 50 |
| | G.R.I. & E.R.I. P.N.S. Controls | 65.2 ± 25.1 | ± 5.0 | 26 |

Table 24

The Order of Merit achieved by the Alternative, Regular and Pre-Nursing School Control Students in the October, 1959 Final State Examination.

| Subject | Category of Students | Average Order of Merit (out of 101 students) | S.E. | No. in Group |
|---|---|---|---|---|
| Surgery | Alternatives | 43.6 ± 28.0 | ± 5.6 | 26 |
| | G.R.I. & E.R.I. Regular Control | 53.2 ± 29.3 | ± 4.3 | 46 |
| | G.R.I. & E.R.I. P.N.S. Control | 53.7 ± 30.2 | ± 5.7 | 29 |
| Medicine | Alternatives | 39.7 ± 27.0 | ± 5.4 | 26 |
| | G.R.I. & E.R.I. Regular Control | 50.4 ± 30.7 | ± 4.6 | 46 |
| | G.R.I. & E.R.I. P.N.S. Control | 61.9 ± 25.0 | ± 4.7 | 29 |
| Nursing Written | Alternatives | 31.2 ± 24.4 | ± 4.9 | 26 |
| | G.R.I. & E.R.I. Regular Control | 55.2 ± 28.5 | ± 4.2 | 46 |
| | G.R.I. & E.R.I. P.N.S. Control | 62.0 ± 26.6 | ± 5.0 | 29 |
| Nursing Practical (Not re-marked) | Alternatives | 61.7 ± 27.2 | ± 5.4 | 26 |
| | G.R.I. & E.R.I. Regular Control | 48.3 ± 32.5 | ± 4.8 | 46 |
| | G.R.I. & E.R.I. P.N.S. Control | 45.6 ± 23.5 | ± 4.4 | 29 |
| Nursing Combined | Alternative | 44.8 ± 31.9 | ± 6.4 | 26 |
| | G.R.I. & E.R.I. Regular Control | 52.1 ± 32.0 | ± 4.8 | 46 |
| | G.R.I. & E.R.I. P.N.S. Control | 54.9 ± 21.3 | ± 4.0 | 29 |

This more detailed breakdown of performance by separation of the regular and pre-nursing control groups reveals again the same trends as have already been noted in the earlier discussion on the analysis of the grading results. Once again these tables indicate that the regular control students are closer to the alternatives in their standard of achievement than the pre-nursing controls. In fact in 1958, in both the surgical and medical papers, the regular control average order of merit was slightly better than the alternative one, but in neither case was the difference technically significant. The less effective performance of the pre-nursing controls compared with the alternative students in all the written papers for both 1958 and 1959 is again evident, and on three out of six occasions reached a level of technical significance - in the nursing written papers both years and the medical paper in 1959.

The conclusion can, therefore, reasonably be drawn from all the available data that the alternative students have generally achieved a better record than the control groups in these examinations, and in doing so have more than succeeded in attaining one of the major objectives of the experiment. The further question which arises, however, is to what factors should this be attributed? Firstly, from the analyses already made, it would seem possible that education and intelligence may be a relevant factor, since the poorer qualifications of the pre-nursing groups in particular have already been illustrated in Chapter VII (see tables nos. 9 and 14). Secondly, it is also feasible that the better educational facilities

and planning of the alternative course may have some bearing on these findings.

In the following section of this chapter an attempt has been made to look at possible connections between these different factors. In practice this further analysis has proved difficult to carry out for several reasons, which have to be noted before the tables and comments can be presented. One major problem was caused by the variation in educational levels between the alternative and control groups. In the former there was only one student in each group who did not have a school leaving certificate whereas in the latter hardly any of the pre-nursing controls had such a qualification. For this reason the control groups in the following tables have been analysed on a hospital rather than regular and pre-nursing school basis as before, so that the 'combined' controls referred to in the tables include both regular and pre-nursing school controls within Glasgow Royal Infirmary and Edinburgh Royal Infirmary. Closely related to this problem was the realisation that if the groups were more finely sub-divided the numbers in each would be too small to be at all effective. As it is, the paucity of students in each group in the following tables, with one exception, has necessitated the omission of standard deviation and standard error of mean calculations.

Another difficulty relating to the tables based on intelligence score has also to be noted. Unfortunately, no N.I.I.P. Group 33 test scores were available for the first group of Glasgow

Royal Infirmary control students, and such data were also unobtainable for the Edinburgh Royal Infirmary students who did not take this test at all. The only intelligence score comparisons available, therefore, are between the 1958 and 1959 alternative groups and the 1959 Glasgow Royal Infirmary controls.

The order of merit quoted in these following tables has been based on the overall performance of each student in the Final State Examination (i.e. the student's order of merit in each subject of the examination has been included to produce a combined total 'order of merit'). The following tables 25, 26 and 27 compare the performance of alternative and control students in similar educational and intellectual categories.

TABLE 25

Performance of the Alternative & Control Students in the Final State Examination in terms of Educational Standard

October, 1958 Results

| EDUCATIONAL STANDARD | ALTERNATIVES | | CONTROLS | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | G.R.I. | | E.R.I. | | BOTH | |
| | Average O.M. | No. in Group | Average O.M. | No. in Group | Average O.M. | No. in Group | Average O.M. | No. in Group |
| 2 or more academic highers | 170.4 | 9 | 224.5 | 8 | 216.8 | 10 | 220.2 | 18 |
| School Leaving Certificate Only | 232.7 | 14 | 259.4 | 12 | 271.2 | 12 | 265.3 | 24 |
| No School Leaving Certificate | 150.0 | 1 | 285.2 | 15 | 300.1 | 19 | 292.9 | 34 |

TABLE 26

Performance of the Alternative & Control Students in the Final State Examination in terms of Educational Standard

October, 1959 Results

| EDUCATIONAL STANDARD | ALTERNATIVES | | CONTROLS | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | G.R.I. | | E.R.I. | | BOTH | |
| | Average O.M. | No. in Group | Average O.M. | No. in Group | Average O.M. | No. in Group | Average O.M. | No. in Group |
| 2 or more academic highers | 194.1 | 16 | 225.8 | 2 | 235.2 | 16 | 234.1 | 18 |
| School Leaving Certificate only | 277.4 | 9 | 248.8 | 6 | 254.4 | 17 | 252.9 | 23 |
| No School Leaving Certificate | 146.5 | 1 | 304.7 | 23 | 260.7 | 11 | 290.5 | 34 |

Table 27 Performance of Alternative and Glasgow Royal Infirmary Control Students in October, 1958 & 1959 Final State Examinations in terms of N.I.I.P. Group Test 33

| Score Range | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I. combined Controls | |
| | Average O.M. | No. in Group | Average O.M. | No. in Group | Average O.M. | No. in Group* |
| >160 | 192.5 | 3 | 163.4 | 4 | - | - |
| 140 - 159 | 91.6 | 5 | 208.3 | 10 | 269.0 | 7 |
| 130 - 139 | 170.9 | 6 | 206.3 | 7 | 212.8 | 3 |
| 120 - 129 | 270.9 | 5 | 292.2 | 4 | 262.1 | 6 |
| 110 - 119 | 276.5 | 4 | (399.0) | 1 | 270.1 | 4 |
| 100 - 109 | 310.0 | 1 | - | - | 292.8 | 3 |
| 90 - 99 | - | - | - | - | 365.3 | 3 |
| <90 | - | - | - | - | 358.4 | 4 |

* Intelligence Score of 1 control student not known.

It appears from tables 25, 26 and 27 that even when educational and intellectual superiority have been discounted the alternative students have gained a better order of merit more frequently than the comparable control groups. Only once, however, was this better performance technically significant when in the 1958 examination (see table 25) the alternative students in the intermediate educational group had a much higher order of merit than the Edinburgh Royal Infirmary control students - $T = .02 > P > .01$. On certain other occasions, illustrated in tables 26 and 27, the control students were more successful than the alternative students of comparable educational and intellectual ability, although on no occasion was the control students' better order of merit of statistical significance.

Even when the Glasgow and Edinburgh Royal Infirmary control groups' order of merit were combined (see tables 25 and 26), the better performance of the alternative students was not significant in either year. (Alternative and G.R.I/E.R.I. control groups with two or more academic highers in 1958 $T = .20 > P > .10$, 1959 $T = .40 > P > .30$ and alternative and G.R.I/E.R.I. control groups with school leaving certificate only in 1958 $T = .40 > P > .30$, 1959 $T = .60 > P > .50$). This analysis certainly suggests that there is little in these results to indicate that the experimental method of training is actually superior to the traditional method, although there may be a slight advantage in favour of the alternative course, especially amongst the most highly educated and intelligent students.

The more constant feature in all these tables is that within almost every group there is a definite relationship between the students' educational and intellectual capacity and the order of merit average achieved in the examinations. The one notable exception was the good result achieved by the two alternative students who had no school leaving certificate, but in each case their intelligence score was above average, and it would seem fair to speculate that these two students were really intelligent girls who for some reason had not taken a school leaving certificate. Tables 28 and 29 will illustrate that not only is this trend apparent from scrutiny of the figures but that frequently it reaches the level of technical significance.

Some difficulty was again experienced in establishing comparable groupings of students for this purpose. The discrepancy already noted in the educational and intellectual capacity of the alternative and control groups made it impossible to compare equal grades of students within each alternative and control grouping. For instance, the alternative students, with one exception, have to be divided into those who have a school leaving certificate with two or more academic highers and those who have a less distinguished certificate, whilst the control groups are divided fairly evenly between those who possess some type of school leaving certificate and those who do not. It was ultimately decided to test the effect of educational standard on Final State Examination results with the control groups only who are closer in ability to the average student

nurse than the alternatives.

A similar problem was encountered on applying this analysis to the intelligence scores, where again the superiority of the alternative groups has been mentioned. But it has been possible here to divide the students into two fairly distinct and not too uneven groups - those who have a score of 130 or more, and those with 129 or less - since this level appears from Table 27 to be the turning point in performance, and at the same time gives a reasonable number of students in each group.

Table 26 — The Influence of Educational Standard on the Order of Merit achieved in the Final State Examination by Glasgow Royal Infirmary and Edinburgh Royal Infirmary Control Students

| | 1958 | | | 1959 | | | 1958 and 1959 | | |
|---|---|---|---|---|---|---|---|---|---|
| Educational Standard | Average O.M. | S.E. | No. in Group | Average O.M. | S.E. | No. in Group | Average O.M. | S.E. | No. in Group |
| G.R.I. & E.R.I. Controls with School Leaving Certificate | 245.9 (± 108.8) | ± 16.2 | 42 | 244.7 (± 113.4) | ± 17.9 | 41 | 245.3 (± 108.0) | ± 11.9 | 83 |
| G.R.I. & E.R.I. Controls with NO School Leaving Certificate | 298.6 (± 91.0) | ± 15.9 | 34 | 290.5 (± 91.7) | ± 15.9 | 34 | 292.1 (± 90.7) | ± 11.1 | 68 |

Table 29 The Influence of Intelligence Score on Order of Merit achieved in the Final State Examination by the Alternative and Glasgow Royal Infirmary Control Students.

| Intelligence Score | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I. Control Students | |
| | Average O.M. | No. in Grp. | Average O.M. | No. in Grp. | Average O.M. | No. * in Grp. |
| > 130 in N.I.I.P. Group Test 33 | 154.1 | 14 | 199.1 | 21 | 252.2 | 10 |
| < 130 in N.I.I.P. Group Test 33 | 277.1 | 10 | 313.6 | 5 | 303.1 | 20 |

*Intelligence Score for one student not known.

The difference in performance between the students with school certificates and those without is very apparent in table 28. In 1958 the difference is significant ($T = .05 > P > .02$), in 1959 it is nearly so ($T = .10 > P > .05$), and when the two years' results are combined $T = .01 > P > .001$. In Table 29 the same trend is apparent and there is little doubt that intelligence score is highly relevant to performance level. In this instance, however, whilst the difference in the scores of the alternative groups in 1958 and 1959 is significant ($T = .001 > P$ and $T = .01 > P > .001$ respectively), the difference between the control categories was not so.

As a result of these last tables, it is possible to add some further details to the conclusion already drawn that the alternative students have been more successful in these Final State Examinations than the control groups. This variation in the performance of the two groups has been shown to be more closely related to the educational and intellectual differences between the alternative and control students than to difference in the two types of courses undertaken. Such a finding also supports the evidence seen in Tables 17 and 18, 23 and 24, relating to the grading and order of merit ratings, where it was noted that almost without exception the standard of the control groups was adversely affected by the pre-nursing school students, only a small minority of whom possess a school leaving certificate and whose intelligence scores are also below the control group average.[1]

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1. See Chapter VII, table 9, p.111 and table 14, p.120

CHAPTER IX

## The Performance of the Alternative & Control Students in the Multiple Choice Tests

The decision to carry out multiple choice tests as part of the process of evaluation proved more difficult than might have been anticipated, but despite certain problems associated with such a technique this was considered to be a valuable additional check on the theoretical competence of the alternative and control students. The General Nursing Council examinations had given all the students an opportunity of showing their capabilities in the traditional written method of examination used in this country, but it was considered that the multiple choice test would provide another measure of theoretical knowledge, eliminating as it did the essay-answer type of question.

In the first place it must be pointed out that such educational tests are not used by the nursing profession in Great Britain, so that there were no ready made samples in existence. Data on the method of assembling such tests and the most suitable parts of the syllabus for incorporation were received from the American Nurses Association, since this method of testing candidates is used for qualifying examinations in both medicine and nursing in North America. But beyond this point it was essential that the multiple choice tests to be administered in this evaluation should be developed especially for the purpose, since the British nursing curriculum in any case differs considerably in subjects and standards from that employed in the American courses.

After seeking advice and guidance from experts in this technique in the nursing and academic field the writer attempted to devise suitable tests for this purpose. The further precaution was taken of carrying out a pilot study of these tests in two Scottish hospitals, where the students volunteered to participate. From this experience it was possible to assess the time required for the completion of the test and to note any questions which had not been understood by the students.[1]

The subjects included in the multiple choice tests and the marks allocated are listed in Table 30. Only subjects common to

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1. The two multiple choice tests used are quoted in Appendices I and II.

Table 30 Multiple Choice Tests - Subjects and Marks Allocated

| Subjects | September 1958 | September 1959 |
|---|---|---|
| Anatomy & Physiology | 30 | 40 |
| Health & Nutrition | 17 | 20 |
| Medical & Surgical Nursing | 40 | 44 |
| Pharmacology | 25 | 15 |
| Administration of Drugs | 20 | 15 |
| Gynaecology | 6 | 6 |
| Bacteriology | 12 | 10 |
| Total | 150 | 150 |

the experimental and control syllabuses were included, and although anatomy and physiology, health and nutrition are subjects belonging to the Preliminary State Examination and not the Final State Examination it was considered advisable to include them, especially as the alternative students had been exempted from the Preliminary State Examination.

The actual arrangements which had to be made for the timing of the tests and the composition of the control groups were also fairly complex for various reasons. In the first place, it was decided that this test should take place as near as possible to the Final State Examination when the alternative and control students were almost at the end of their second and third years as students respectively. Secondly, it became apparent that it would only be possible to carry out this test with the Glasgow Royal Infirmary control nurses, since the Edinburgh Royal Infirmary students no longer attended a revision study block at the end of their third year, and there seemed little prospect of withdrawing a sufficient number of them from the wards at any one time for this purpose.

Permission was accordingly sought from the Matron of Glasgow Royal Infirmary to carry out this test with the control students, who about one month before taking their Final State Examination attended a revision study block for fourteen days. This arrangement meant that about half the control nurses were in the first revision block and the other half in the second one held a fortnight later. Plans were made for the multiple choice test

to be carried out with the first group of alternative and control students in September, 1958 (before taking their Final State Examination in October, 1958). The test was to last one hour altogether, a quarter of an hour being allowed for giving out the test paper and the necessary instructions.[1] During the first year it was agreed (over-optimistically as was later proved) that the test should be given to the control students in their two separate revision blocks on the 5th and 19th September, and to the alternative students in their separate school of nursing on 22nd September, the day after they had returned from two weeks' holiday.

The suspected danger of having a two-week gap in the administration of the same test, which could lead to some collusion between the two parts of the control group, was unfortunately confirmed. In marking the papers it was discovered that the control students who took the test on 19th September had a considerably higher score level throughout the test than either the alternative students or the control group taking the test on 5th September. This difference was greater than could have arisen by chance, and it has been decided that as the difference in marks was so noticeable, this part of the first control group should be discarded in evaluating the results of this test, since any such collusion would be detrimental to the evaluation of the alternative group's performance.

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1. The multiple choice tests were conducted in both years (1958 and 1959) by a member of the Nursing Studies Unit of Edinburgh University and exactly the same instructions were given to alternative and control students on each occasion.

In the next Table, No. 31, the control group of twenty-eight students who took the test on 5th September is composed of twelve control students belonging to the established controls used elsewhere in this study, while the other sixteen students taking the test on this same day were nurses of similar seniority whose date for taking the Final State Examination had been postponed from June to October, on account of extra sickness absence they had incurred. The control group on this occasion was, therefore, partially co-opted, but it is reasonable to assume that this affords a more reliable control than would the inclusion of the remaining twenty-two control students who took the test on 19th September.

In planning the 1959 test, however, it was arranged that all the control students should be present in the classroom at one time to take the test, even though half of them had to be brought from the wards to do so. The alternative students were also available in their classroom for one hour later in the same day. On this second occasion in September 1959, the test was taken by all twenty-six alternative students and thirty-one control students.

It had also been learned from the marking of the 1958 multiple choice papers that, if anything, the standard of the first paper had been rather high, and greater leniency in the amount of knowledge required and the allocation of marks was allowed on the second occasion. This change in policy accounts for the slight variation in the two multiple choice papers, and also for the fact that the marks scored by both groups of students were considerably higher in 1959.

The analysis of the results of these tests has been based on the actual marks achieved by the students in each subject of the test, and in the whole test. The presentation of the tables and the discussion of the students' performance will be similar to that used in the previous chapter, giving the results achieved by all the students in the alternative and control groups in the first instance, and secondly illustrating to what extent any variation in achievement might be related to the different courses or students taking them. As these multiple choice tests were only conducted in Glasgow Royal Infirmary, and the number of students participating was small on each occasion, the regular and pre-nursing school control groups have been combined in the tables presented throughout this Chapter.

Table 31 The Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Multiple Choice Test.

September, 1958 Test Results

| Subject | Alternatives | | G.R.I. Controls * | |
|---|---|---|---|---|
| | Mean Score | S.E. | Mean Score | S.E. |
| Anatomy & Physiology | 12.9 ± 3.5 | ± 0.7 | 12.9 ± 3.6 | ± 0.6 |
| Health & Nutrition | 10.0 ± 2.6 | ± 0.5 | 8.4 ± 3.7 | ± 0.7 |
| Medicine & Surgery | 11.6 ± 6.7. | ± 1.4 | 9.8 ± 5.4 | ± 1.1 |
| Gynaecology | 4.3 ± 1.7 | ± 0.3 | 3.5 ± 1.8 | ± 0.3 |
| Bacteriology | 6.4 ± 2.5 | ± 0.5 | 6.4 ± 2.4 | ±0 .5 |
| Pharmacology | 7.2 ± 3.4 | ± 0.7 | 7.1 ± 3.4 | ± 0.6 |
| Administration of Drugs | 5.9. ± 3.8 | ± 0.8 | 5.9 ± 2.8 | ± 0.5 |
| Whole Test | 58.3 ±12.4 | ±2.6 | 54.0 ±15.4 | ±2.9 |

* Control group for this test was composed of 12 students in established control and a further 16 students co-opted as 'controls' on this occasion.

Table 32 The Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Multiple Choice Test

September, 1959 Test Results

| Subject | Alternatives | | G.R.I. Controls | |
|---|---|---|---|---|
| | Mean Score | S.E. | Mean Score | S.E. |
| Anatomy & Physiology | 18.1 ± 5.4 | ± 1.1 | 14.6 ± 3.9 | ±0.7 |
| Health & Nutrition | 6.9 ± 2.1 | ± 0.4 | 6.4 ± 2.7 | ±0.5 |
| Medicine & Surgery | 21.6 ± 3.9 | ± 0.8 | 22.8 ± 4.1 | ±0.7 |
| Gynaecology | 2.9 ± 1.4 | ± 0.3 | 2.8 ± 1.3 | ±0.2 |
| Bacteriology | 7.3 ± 2.4 | ± 0.5 | 6.4 ± 2.1 | ±0.4 |
| Pharmacology | 5.7 ± 4.7 | ± 0.4 | 6.1 ± 2.2 | ±0.4 |
| Administration of Drugs | 8.2 ± 3.8 | ± 0.8 | 7.3 ± 4.2 | ±0.8 |
| Whole Test | 70.7 ±12.8 | ± 2.6 | 66.4 ±13.1 | ±2.4 |

Tables Nos. 31 and 32 indicate to some extent the same results as the overall performance in the General Nursing Council examinations, in so far as the alternative students have gained higher scores quite consistently throughout the tests, although on only one occasion during these two years did the better performance of the alternative students reach a significant level. This was in the anatomy and physiology section of the test in 1959 ( T= .05> P> .02). Only twice, in 1959, did the control average slightly exceed the alternative average but on neither occasion was it a significant difference in terms of the T test.

One of the most interesting features of this test was the inclusion of the subjects taken in the Preliminary State Examination from which the alternative students had been exempted, providing a guarantee of their competence in these subjects was given by their own tutors. It will be seen from this table that as far as anatomy and physiology was concerned the alternative students equalled the performance of the controls in 1958 and emphatically improved upon the control marks in 1959. In the health and nutrition section of the test the alternative students were also more successful on both occasions. From these results it would certainly appear that they seemed to be at no disadvantage by having omitted the Preliminary State Examination.

It is also relevant to point out that the control students had what might seem to be an advantage over the alternative students in other sections of this test, such as medicine and surgery, pharmacology and the administration of drugs, due probably to the

way their course was organised. Not only was their practical experience of patients' symptoms more lengthy and extensive, but they had many more opportunities for learning about the practical applications of pharmacology and drug administration on the wards. It seems, however, that the alternative students' theoretical knowledge suffered in no way from a shorter range of practical experience.

Tables 33, 34 and 35 relate to the achievement of the alternative and control students in various educational and intellectual categories to establish to what extent, if any, the results were affected by such factors. It will be noted that the classifications used here are the same as those given in the previous chapter. The numbers of students in each group were again very small, and therefore standard deviation and standard error calculations have been omitted.

Table 33 The Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Multiple Choice Test in terms of Educational Standard. September, 1958 Results

| Educational Standard | Alternatives | | G.R.I. Combined Controls | |
|---|---|---|---|---|
| | Average Score | No. in Group | Average Score | No.* in Group |
| 2 or more academic highers | 62.1 | 9 | 65.3 | 2 |
| School leaving certificate only | 54.2 | 14 | 56.0 | 4 |
| No school leaving certificate | 83.6 | 1 | 49.3 | 6 |

* The twelve established control students only were included in these calculations, as educational and intellectual ability of co-opted controls unknown.

Table 34 The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Multiple Choice Tests in terms of Educational Standard.

September, 1959 Results

| Educational Standard | Alternatives | | G.R.I. Combined Controls | |
|---|---|---|---|---|
| | Average Score | No. in Group | Average Score | No. in Group |
| 2 or more academic highers | 75.1 | 16 | 78.5 | 2 |
| School leaving certificate only | 61.6 | 9 | 68.3 | 6 |
| No School leaving certificate | 71.5 | 1 | 64.9 | 23 |

Table 35 Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Multiple Choice Tests in terms of the N.I.I.P. Group Test 33.

| Score Range | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I. Combined Controls * | |
| | Average Score | No. in Group | Average Score | No. in Group | Average Score | No. in Group |
| > 160 | 58.8 | 3 | 85.5 | 4 | - | - |
| 140 - 159 | 59.9 | 5 | 70.2 | 10 | 74.4 | 7 |
| 130 - 139 | 63.1 | 6 | 68.9 | 7 | 77.8 | 3 |
| 120 - 129 | 57.0 | 5 | 62.5 | 4 | 78.4 | 6 |
| 110 - 119 | 52.0 | 4 | 53.5 | 1 | 58.0 | 4 |
| 100 - 109 | 53.5 | 1 | - | - | 64.0 | 3 |
| 90 - 99 | - | - | - | - | 53.1 | 3 |
| < 90 | - | - | - | - | 47.2 | 4 |

* Intelligence score of one control student not known.

In these tables two trends are apparent. Firstly, that in this particular test whenever the students of equal educational and intellectual standard are compared the controls have obtained a higher score than the alternatives, although on only one occasion, in the 1959 N.I.I.P. Group Test 33 score range 120-129 did this superior control performance show a significant difference ($T = .01 > P > .001$). It will be remembered that in the similar analysis made of the General Nursing Council Final State Examination results the alternative students more frequently gained a higher average order of merit. It would appear, however, from these tables that the control students' course in some way gave them a slight advantage in these particular tests. Two reasons may tentatively be suggested to support this evidence. The control students, as pointed out earlier, may on account of considerably greater practical experience on the wards have been more familiar with some of the data required, and it is also possible that the alternative students may not have performed so well in an examination where their greater experience in the essay-answer type of question did not count.

The second notable trend, similar to the one observed in the previous chapter, shows that there is a relation throughout these last three tables between education, intelligence and results achieved. This suggests that once again superior education and intelligence of the alternative students may have been responsible for their better overall performance. Tables 36 and 37 comparing the performance of students of varying abilities within each group will assist in elucidating this possibility.

Table 36 The Influence of Educational Level on the Results achieved in the Multiple Choice Tests by the Glasgow Royal Control Students

| Educational Standard | 1958 | | 1959 | |
|---|---|---|---|---|
| | Average Score | No. in Group* | Average Score | No. in Group |
| G.R.I. Combined controls with school leaving certificate | 59.1 | 6 | 70.9 | 8 |
| G.R.I. Combined controls with no school leaving certificate | 49.3 | 6 | 64.9 | 23 |

* Only twelve established control students included in this table, and educational and intellectual ability of co-opted controls unknown.

Table 37 The Influence of Intelligence Score on the Results achieved in the Multiple Choice Tests by the Alternative & Glasgow Royal Control Students

| Intelligence Score | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I. Combined Controls | |
| | Average Score | No. in Group | Average Score | No. in Group | Average Score | No. in Group* |
| >130 in N.I.I.P. Group Test 33 | 61.1 | 14 | 72.6 | 21 | 75.4 | 10 |
| <130 in N.I.I.P. Group Test 33 | 54.8 | 10 | 60.7 | 5 | 61.9 | 20 |

* Intelligence score of one control student unknown.

This analysis confirms again that educational and intellectual ability have a strong influence on examination success, which must immediately put the alternative students in a highly advantageous position. As far as can be judged from the evidence in these tables the intelligence score again seems to have a greater influence on the results than general level of education. In neither year was the better performance of the Glasgow Royal Infirmary control students who had a school leaving certificate significantly higher than those who did not possess this qualification, whereas in the intelligence score analysis the more intelligent alternative and control students in 1959 had significantly better results ($T = .02 > P > .05$ and $T = .01 > P > .001$ respectively); and in 1958 the alternative students with a score of 130 or more had a higher rating than their less intelligent colleagues, although the difference was not technically significant ($T = .10 > P > .20$).

There is no doubt that the alternative students acquitted themselves in a most satisfactory manner in these multiple choice tests in so far as they slightly improved upon the overall performance of the control nurses. Equally, however, it has been demonstrated that for this achievement the alternative students had relied heavily on their superior intellectual abilities, and that when this advantage was discounted the control students' ratings were slightly better. As in the previous chapter it seems reasonable to conclude that personal ability and educational background played a greater part than the new course itself in the success of the experimental students.

CHAPTER X

## The Performance of the Alternative & Control Students in the Ward Practical Tests

In contrast to the two preceding chapters, which have dealt almost exclusively with the theoretical performance of the alternative and control students, this present discussion is concerned with their performance in a practical ward test taken by both groups a few months before the Final State Examination. This was a further method of evaluation which, as far as is known, has not been used previously in the assessment of other experimental courses. It was, however, considered to be a vital area of the student nurse's education fully justifying some objective measurement.

In the course of evaluation discussions with the Matron of Glasgow Royal Infirmary it had become known that a ward practical test was taken by all three year students within a few months of completing their Final State Examination. This test had, in fact, nothing whatsoever to do with the General Nursing Council Examination, but was part of an internal process of student nurse assessment carried out in this hospital. The advantages of such a test, which enabled the student to be assessed as she performed a treatment for a patient in a normal ward setting, were obvious, especially as the General Nursing Council practical examination, has of necessity, to be conducted in a classroom with apparatus and no patients. These State practical examinations have to be conducted in this way principally on account of the large number of students

participating three times a year.

The Matron of Glasgow Royal Infirmary gave permission for these tests to be extended to include the alternative as well as the control students. Although these ward practical tests were routinely carried out three times a year by the ward sisters for the latter group, it was considered essential that for assessment purposes other external examiners should be invited to assist them. Two senior nurses experienced in this technique were, therefore, invited to come to Glasgow Royal Infirmary to help with this project. One of them was the Matron of a London hospital, and the second a Principal Tutor of a Scottish hospital a considerable distance from Glasgow.

The exact timing and detailing of this procedure had to be worked out as soon as possible, and it was arranged that the first ward practical test should take place in August 1958 to include the first group of alternative students due to take their Final State Examination in October 1958, and as many as possible of the first control group of students, also due to take the same State Examination.[1] Both groups of students were, therefore, within two months of taking their Final State Examination, although once again this meant that the control nurses had been students for an extra year. The examination for the second alternative and control groups of students was planned to take place in May 1959, as this was the more customary time for this examination to be carried out.

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1. As arrangements had to be made rather hastily in 1958 only nineteen regular control nurses could be included, and the other five students were nurses who had commenced their course a little earlier than the controls.

It was also decided, with the agreement of the Matron of Glasgow Royal Infirmary, to invite the two external examiners to visit the hospital a few months before the first official test was to take place, so that they might get a personal impression of the layout of the wards and the exact method by which the ward sisters normally conducted this examination. This preliminary visit to the hospital proved of great advantage to everyone concerned with this work and the essential arrangements for this evaluation procedure were established at this time. It was decided that, as there would be a total of about fifty students to be seen on each occasion,[1] one external observer should work with one ward sister over a three-day period, so that each pair of observers could see eight students daily, a total of sixteen students being examined on each of the three days.

The method of examination was to be exactly the same as usual, so that the student would come to a specified ward where she was then asked to prepare and carry out a certain medical or surgical procedure for one of the patients. The external examiners were also marking the students independently under their

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1. There were 24 alternative and 24 control students to be examined in August 1958 and 26 alternative and 26 control students to be examined in May, 1959.

own headings, in order to provide a summary on the performance of each nurse. The only addition to the usual routine of the ward practical test was a request to the Matron of the hospital that the external examiners should have a five minute viva-voce with each alternative and control student at the completion of the test. This request meant adding slightly to the length and stress of the ward test for the students, but it was important that the external examiners should meet each candidate individually if they were to give an objective rating of overall performance. This additional request was granted by the Matron of Glasgow Royal Infirmary.

The difficulties associated with the carrying out of this practical test on a large scale in order to include about fifty students on each occasion were quite considerable; and it is as well to recognise that there were variable as well as invariable factors in this test for all the students.

As far as possible, the arrangements for these ward practical tests were the same for both groups of students. For instance, all the students on both occasions were wearing the same uniform and identified by numbers, so that the external observers had no idea to which group they belonged. The students came to each ward in pairs, and were allocated their nursing procedure and patient upon arrival.

The two students stayed on the ward for an hour altogether, and were each examined for half an hour in turn, whenever they had their equipment and procedure ready for demonstration. On the second occasion, all the students also had access to the patients' case notes before commencing their practical test.

There were, however, a number of variable factors which must also be noted and recognised. Firstly, it was never possible, under these circumstances, to give all fifty of the students the same procedure to carry out. Sometimes, it was difficult to find a suitable number of procedures for all the students to be examined; and certain inconsistencies immediately arose. For instance some of the students, on both occasions, had a very complicated technical nursing procedure to perform, such as the removal of a drainage tube, and a few of them even assisted the medical staff with a treatment. Others again were carrying out more routine nursing procedures, such as the treatment of pressure areas or getting a patient out of bed. Some students would be more familiar with a certain ward and its patients, whilst others would perhaps find themselves on a totally strange ward, where even the layout of equipment would be unfamiliar.

Another important factor is always the attitude of the patient himself on such occasions. Undoubtedly most patients are extremely co-operative and enter into the spirit of the

event, when they have been told that the treatment being carried out by the student will be observed by other nursing assessors. There can be, nevertheless, a variation in the extent of a patient's co-operation and understanding which will have some repercussions upon the student nurse concerned. These variables taken together do mean that not only did some students apparently have an easier test than others, but that the assessment of their performance was a difficult and skilled job.

There was another aspect of this work which presented unique problems. It has already been mentioned that the actual method and execution of the examination was left in the hands of the ward sisters of Glasgow Royal Infirmary, so that no difference from routine practice should be made in the internal assessment of the students, of which their ward practical test formed an important part. But this policy did mean at the same time the imposition of quite severe restrictions upon the external examiners who, although present throughout the tests, had not selected the procedures to be carried out by the students.

The data and comments which follow are based entirely upon reports made available by the two external examiners. They each submitted two reports, one for the August, 1958 and one for the May, 1959 test. On both occasions they had a total of fifty marks to allocate to each candidate, twenty marks for

preparation of equipment and technique, twenty marks for skill in handling the situation and patient relationship and ten marks for the viva-voce. They also provided comments on the practical, theoretical and personal abilities of each student observed, to which reference will be made later in this discussion.

Each student was seen by only one of the two external examiners, but it was also arranged that they each observed half the alternative and half the control group on both occasions. For this reason in all the tables on this test the external examiners' marks have been combined, as it is considered that any slight variation in standard of marking will affect both groups equally, and as the examiners themselves said "they were unable to distinguish which students belonged to each group", there was no need to doubt their objectivity.

The discussion of the data in this section will again relate to the performance of the alternative and Glasgow Royal Infirmary control students as groups, and then the standard achieved by students of varying educational and intellectual ability within each group. The control groups in all the following tables Nos. 38 to 44 are the combined regular and pre-nursing school controls. The performance of the pre-nursing controls has not been tabled separately because neither the regular nor pre-nursing school control groups were complete in either year. In 1958

only twenty-four control nurses out of a possible total of thirty-five were examined, and in 1959 only twenty-six control nurses out of a possible total of thirty-one were examined. These examinees were selected according to availability at the time of the test, and as a result neither part of the control groups were representative or complete enough for separate evaluation. In 1958 in order to establish a control group at all, five unofficial control nurses had to be co-opted to make up the group.

Table 38

The Performance of the Alternative & Glasgow Royal Control Students in the Ward Practical Test

August, 1958 Test Results

| Subject | Alternative Students | | G.R.I. Combined Controls | |
|---|---|---|---|---|
| | Average Score | S.E. | Average Score | S.E. |
| Preparation of equipment & Technique | 13.0 ± 2.6 | ±0.5 | 12.6 ± 3.6 | ±0.7 |
| Skill, Patient relationship & appearance | 13.9 ± 2.3 | ±0.5 | 13.4 ± 3.6 | ±0.7 |
| Viva-voce interview | 6.6 ± 1.4 | ±0.3 | 6.7 ± 1.7 | ±0.3 |
| Total results | 33.5 ± 4.4 | ±0.9 | 32.7 ± 8.1 | ±1.7 |

Table 39 The Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Ward

Practical Test

May 1959 Test Results

| | Alternative Students | | G.R.I. Combined Controls | |
|---|---|---|---|---|
| Subject | Average Score | S.E. | Average Score | S.E. |
| Preparation of equipment & technique | 13.1 ±2.1 | ± 0.5 | 13.1 ±2.9 | ± 0.6 |
| Skill, patient relationship & appearance | 13.7 ±2.8 | ± 0.5 | 13.6 ±2.0 | ± 0.4 |
| Viva-voce interview | 6.2 ±1.5 | ± 0.3 | 6.6 ±1.7 | ± 0.3 |
| Total results | 33.0 ±6.1 | ± 1.2 | 33.3 ±5.2 | ± 1.0 |

It is quite clear from the above tables that the performance of both groups of students in 1958 and 1959 is almost identical; in fact there is no statistically significant difference in their abilities under any of these headings. The alternative students have gained a slightly higher average mark for their skill in planning procedures and their attitude to patients in both years, and in 1958 for their preparation of equipment and technique. On the other hand, the controls have scored a slightly higher average

mark on both occasions in their viva-voce test.

Although, however, these marks are almost identical on both occasions, credit must be given to the alternative group for equalling the standard achieved by the controls who had, after all, been in the wards for an extra year and for much longer periods of time. This additional experience would not only familiarise them with techniques but in learning the most effective ways of approaching and handling their patients. A second point of interest is that the control students have attained a slightly higher average mark than the alternatives during their viva-voce interview. This finding would seem to contradict the more satisfactory theoretical results achieved by the alternative students in both the General Nursing Council Final State Examination and the multiple choice tests . The difference, however, is so slight that it may be accidental, but also it is possible that the additional familiarity with wards, and patient treatment may have favoured the control students in this particular situation.

As the closeness of the marks would indicate the type of comment made by the external examiners on performance was similar for both groups of students. In both cases the students were generally commended for their kindness to patients and the friendly but professional relationship established with them during the treatment.

The remarks made by the two examiners in their reports reflected clearly the close marking of the two groups of students seen in Tables 38 & 39. They related principally to the performance of the students under the three headings for which they had allocated the marks. Twenty alternative and twenty control students were commended on the adequate and careful preparation of their equipment and materials, whilst it was also pointed out that ten alternative and fifteen control students had not effectively prepared for the procedures they had to undertake. As far as the standard of technique was concerned the examiners noted the skill and competence displayed by twenty-five of the alternative students and twenty-seven of the control students, but at the same time criticised the technical performance of nineteen other students in each group. The comments on the viva-voce again fall into almost the same pattern with twenty-seven alternative students and thirty control students being commended for their grasp and understanding of nursing precedure and eighteen students again in each group were considered to have a rather inadequate theoretical knowledge and not much idea of correlating theory and practice.

An analysis was also made on the educational background and intelligence score of these students using the same classification as for the re-marked General Nursing Council papers and multiple choice tests. Once again the small numbers of students in each category in these tables caused the omission of standard deviation and standard error tests.

Table 40 The Performance of the Alternative and Glasgow Royal Infirmary Control Students in the Ward Practical Test in terms of Educational Standard

August 1958, Results

| Educational Standard | Alternative | | G.R.I. Combined Controls * | |
|---|---|---|---|---|
| | Average Score | No. in Group | Average Score | No. in Group |
| 2 or more academic highers | 33.4 | 9 | 34.7 | 4 |
| School leaving certificate only | 33.1 | 14 | 33.3 | 9 |
| No school leaving cert. | 32.0 | 1 | 31.8 | 6 |

* Five students who took this test in August 1958 were co-opted controls and their educational standard unknown.

Table 41 The Performance of the Alternative & Glasgow Royal Infirmary Control Students in the Ward Practical Test in terms of Educational Standard.

May 1959 Results

| Educational Standard | Alternative Students | | G. R. I. Combined Controls | |
|---|---|---|---|---|
| | Average Score | No. in Group | Average Score | No. in Group |
| 2 or more academic highers | 34.9 | 16 | 32.0 | 2 |
| school leaving certificate only | 31.2 | 9 | 33.8 | 5 |
| No School leaving certificate | 20.0 | 1 | 33.3 | 19 |

Table 42 Performance of Alternative & Glasgow Royal Infirmary Control Students in Ward Practical Test in terms of the N.I.I.P. Gp. Test 33

| Score Range | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I. combined Controls * | |
| | Average Score | No. in Group | Average Score | No.in Group | Average Score | No.in Group |
| > 160 | 35.6 | 3 | 33.7 | 4 | -- | - |
| 140 - 159 | 34.6 | 5 | 32.4 | 10 | 36.3 | 4 |
| 130 - 139 | 33.6 | 6 | 31.3 | 7 | 29.3 | 3 |
| 120 - 129 | 32.2 | 5 | 38.0 | 4 | 31.5 | 6 |
| 110 - 119 | 31.3 | 4 | 20.0 | 1 | 36.6 | 3 |
| 100 - 109 | 31.0 | 1 | - | - | 34.3 | 3 |
| 90 - 99 | - | - | - | - | 29.0 | 2 |
| < 90 | - | - | - | - | 34.8 | 4 |

* Intelligence score of one student unknown.

These tables indicate that when allowances have been made for educational and intellectual differences between the two groups of students there is again little variation in their respective achievements. The fact that the alternative students have achieved as good a standard as the controls must, as already indicated, leads to the conclusion that their course has enabled them to gain this proficiency after spending a much shorter period of time on clinical nursing. Unlike the earlier analyses of the General Nursing Council final examinations and the multiple choice tests, there seems also to be no evidence of the importance of greater educational or intellectual ability in this practical test. This observation will be checked, however, in the next tables, Nos. 43 and 44, showing the standard achieved by each group in terms of their own educational and intellectual background.

Table 43 The Influence of Educational Standard on the results achieved by Glasgow Royal Infirmary Control Students in the Ward Practical Tests.

| Educational Standard | 1958 | | 1959 | | 1958 & 1959 | |
|---|---|---|---|---|---|---|
| | Average Score | No.in Group | Average Score | No.in Group | Average Score | No.in Group |
| G.R.I. Combined controls with school leaving certificate * | 33.8 | 13 | 33.3 | 7 | 33.6 | 20 |
| G.R.I. combined controls with no school leaving certificate * | 31.8 | 6 | 33.3 | 19 | 32.9 | 25 |

* Five students who took this test in August, 1958 were co-opted Controls and their educational standard is unknown.

Table 44 The Influence of Intelligence Score on the Results achieved by the Alternative & Glasgow Royal Infirmary Control Students in the Ward Practical Tests.

| Intelligence Score | 1958 | | 1959 | | | |
|---|---|---|---|---|---|---|
| | Alternative Students | | Alternative Students | | G.R.I.Combined Controls * | |
| | Average Score | No.in Group | Average Score | No.in Group | Average Score | No. in Group |
| >130 in N.I.I.P Group Test 33 | 34.5 | 14 | 32.3 | 21 | 33.3 | 7 |
| <130 in N.I.I.P Group Test 33 | 31.6 | 10 | 36.2 | 5 | 33.3 | 18 |

* Intelligence score of one student unknown.

It appears, as previously suspected, that the ability of the students in this instance seems to have no bearing on their performance. Indeed, it may be argued that if the highly educated and most intelligent students do no better than their less able colleagues they certainly do no worse. This finding is in itself of importance in a profession where the possession of reasonable academic ability has sometimes been regarded as a disadvantage in practical affairs. These tables confirm the impression already noted that, in this particular test of practical skill, the alternative students appear to have benefited from the shorter but more closely supervised clinical experience available to them, as they have not in this instance relied on their superior academic ability to equal the performance of the control students in a much shorter period of time.

CHAPTER XI

## Analysis o f Sickness and Wastage among the Alternative and Control Students.

In contrast to the preceding chapters this one is concerned solely with the analysis of records routinely kept; these relate to the sickness absence and wastage of the alternative and control nurses included in this study. The importance of such data in relation to the basic objectives of the experiment was immediately apparent, and arrangements were made for the collection of this material during the planning of the evaluation procedures early in 1958. These records have been collected for the alternative students and both groups of control students in Glasgow Royal Infirmary and Edinburgh Royal Infirmary, as the Matrons of both these hospitals agreed to make these data available for the evaluation.

Although it has been quite straightforward to collect the details required for each student under these headings, it has not always been possible to obtain the fullest records desirable regarding the causes of discontinuation of training. The collection of these records was not organised until 1958, and, as already indicated, the first control group had commenced their course as early as August, 1955, when their inclusion in such an assessment operation could not be anticipated. Consequently, these records in

relation to wastage were less detailed on some occasions than was perhaps desirable.

The sickness records discussed in this chapter cover the whole three years of the course for the first groups of alternative and control students, two years for the second group and one year only for the last groups. The wastage records are, however, complete for all nurses in this study, as the last intake of alternative and control students have taken their Final State Examination in October, 1960, and it has already been possible to bring these particular records right up to date.

Sickness Records

In the two following tables the comparative sickness rates of students in both the alternative and control groups are presented so far as they are known at present. Table 45 indicates the mean rate of sickness occurring in the alternative and control groups in each year of the course and Table 46 illustrates the various lengths of absence during each year for both groups of students.

TABLE 45 Average Number of Days Sickness per Annum for the Alternative and Control Students

| | | Alternative Students | G.R.I. Combined Control Students Days per Annum | E.R.I. Combined Control Students Days per Annum | E.R.I. & G.R.I. Combined Controls Days per Annum |
|---|---|---|---|---|---|
| First Year | 1st group 1st year | 5.8 | 12.1 | 8.4 | 10.25 |
| | 2nd group 1st year | 6.9 | 7.7 | 8.0 | 7.85 |
| | 3rd group 1st year | 14.1 | 8.7 | 12.6 | 10.65 |
| Second Year | 1st group 2nd year | 6.1 | 12.7 | 6.4 | 9.55 |
| | 2nd group 2nd year | 7.3 | 15.5 | 15.8 | 15.65 |
| Third Year | 1st group 3rd year | 9.3 | 12.2 | 8.9 | 10.55 |

TABLE 46

Length of Sickness Absence for the Alternative & Control Students In each year of the Course

| | | No. of Days Sickness per Annum | | |
|---|---|---|---|---|
| | Length of Sickness Absence | Alternative Students | G.R.I. Combined Controls | E.R.I. Combined Controls |
| First Year | Percentage of students with no sick leave | 30.1 | 35.3 | 43.8 |
| | Percentage of students with 1-14 days sick leave | 50.7 | 39.3 | 35.8 |
| | Percentage of students with 15-42 days sick leave | 15.1 | 22.0 | 15.4 |
| | Percentage of students with over 6 weeks sick leave | 4.1 | 3.3 | 4.9 |
| | Total | 100.0 | 100.0 | 100.0 |
| Second Year | Percentage of students with no sick leave | 28.0 | 31.8 | 41.3 |
| | Percentage of students with 1-14 days sick leave | 60.0 | 34.1 | 33.7 |
| | Percentage of students with 15-42 days sick leave | 10.0 | 28.2 | 18.3 |
| | Percentage of students with over 6 weeks sick leave | 2.0 | 5.9 | 6.7 |
| | Total | 100.0 | 100.0 | 100.0 |
| Third Year | Percentage of students with no sick leave | (50.0) * | 30.6 | 39.1 |
| | Percentage of students with 1-14 days sick leave | (29.2) * | 42.9 | 47.8 |
| | Percentage of students with 15-42 days sick leave | (16.7) * | 20.4 | 8.7 |
| | Percentage of students with over 6 weeks sick leave | ( 4.1) * | 6.1 | 4.4. |
| | Total | 100.0 | 100.0 | 100.0 |
| Total Number of Students ** | | 73 | 150 | 162 |

* Brackets indicate Interne year of alternative students.

** Nurses who have discontinued before the completion of current year of course have been excluded from the above table.

Table No. 45 illustrates that the alternative students have generally a lower rate of sickness absence than the controls. The combined average rate of sickness for the controls exceeds that of the alternative students on every occasion except one, when the last intake of alternative students have had a higher rate of sickness in their first year. It is also interesting to note that the first group of these nurses have had quite a high average rate of sickness in the interne or third year, which might be due to the fact that they were nearly all non-resident at this time. Both the alternative and control groups tended to have a slightly higher average in the second year of their course.

It is also apparent from table No. 46 that a slightly higher average percentage of control students have a longer period of sickness absence than the alternatives, except in the case of the interne year when, as already noted a large number of these nurses were non-resident. But in the first year 19.2 per cent. of the alternatives have more than fifteen days sickness as compared with 25.3 per cent. and 20.3 per cent. in Glasgow and Edinburgh Royal Infirmary control groups respectively. In the second year the difference was more marked still being 12.0 per cent., for the alternative group and 34.1 per cent. and 25.0 per cent. for the other control groups.

As three-year records could be obtained for the first group of alternative and control students it has been possible to work out the aggregate sickness absence of nurses in these two groups. The

twenty-four alternative nurses could attend wards and classrooms on 24,192 days in their three years, and in fact lost only 408 days through sickness. Their attendance was, therefore, 98.3 per cent. of the possible total. Similarly the number of days when the first group of control nurses could work on the wards or classrooms was 46,368 for both the Glasgow Royal Infirmary and Edinburgh Royal Infirmary groups. The aggregate attendance of the Glasgow Royal control group was 96.4 per cent. and 97.9 per cent. for the Edinburgh Royal control group. So that considered from this angle the performance of the first group of alternative nurses was again better than the controls, the time lost through sickness being very small indeed.

An even greater difference in the sickness absence rates of the two groups might have been expected, when the considerable differences in their working conditions are recalled. It will be remembered that the control students spent over forty-six hours a week on the wards, whilst at no time did the alternatives spend more than thirty-two hours a week there out of a forty-hour week. Whereas the alternative students did a minimal amount of night duty, the controls nearly all spent two or three months of each student year on night duty, so that their proneness to both fatigue and infection was likely to be considerably greater. The slightly reduced rate of sickness absence amongst the alternative nurses, may, therefore, to some extent be regarded as an indication of the better training conditions enjoyed by them.

Some comment on the sickness rates of the alternative and control students who did not complete their course is also revealing.

Of the fifty-eight control students who discontinued before taking their Final State Examination eleven of them did so for health reasons, three during the first year, five in the second year and three in the final year. The three students leaving on account of illness in the first year had an average sickness absence rate of fifty-nine days as against the other thirty-two first year leavers with an average of 5.8 days only. In the second and third years the students leaving on account of ill health had an average sickness rate of 90.7 and 193.6 days as against 13.0 and 3.0 for the other second and third year leavers respectively.

Only two alternative students have left for health reasons: one left during the first year with eighty-two days sickness absence and the other in the second year after being off sick for 119 days. The one other leaver in this group discontinued without any sickness absence in her first year.

It therefore appears that the students in both groups who leave for health reasons are those who have accumulated an exceptional amount of sickness absence. This is very noticeable if these rates are compared with average rates in table No. 45. The proportion of control students leaving the course for health reasons is also slightly greater than the alternative's,[1] which may well be

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1. Ratio of alternative students leaving for health reasons was 1 = 37.5. Ratio of control students leaving for health reasons was 1 = 32.2.

due to the fact that once they exceed the amount of sick leave officially permitted by the General Nursing Council the date of their Final State Examination is postponed, so that they have to join a more junior student group in the hospital. This procedure, inevitable in the regular three-year schools, could have a depressing effect on quite a number of the three-year students, who do not like falling behind the group with whom they have commenced their course. Such a problem does not, on the other hand, arise for the alternative students, who are permitted to take the Final State Examination at the completion of their two years, irrespective of the amount of sickness absence, so long as any lectures missed have been made up before taking the examination.

This preliminary analysis of the amount of sickness absence would seem so far to indicate that the alternative nurses not only have a slightly lower average rate of absence, but that there is also evidence that they do not discontinue their training so easily for this reason.

Wastage Records

The reduction of wastage amongst student nurses has already been noted as one of the basic premises of the experiment. The records discussed here relate to all the alternative and control nurses in this study up to the time of taking the October, 1960 Final State Examination.

During the period under consideration fifty-eight students left from the two control groups, twenty-seven from Glasgow Royal

Infirmary and thirty-one from Edinburgh Royal Infirmary. Thirty-five or 60.3 per cent. of them left during the first year of the course, 27.6 in the second year and only 12.1 per cent. in the third year. Three alternative students have also left, all of them from the last intake in September, 1958. Two of them left during their first year and one in her second year.

Table No. 47 indicates the difference between the number of students completing their course in the alternative and control groups, who are referred to as 'stayers', and the number of students in both groups who left before taking their Final State Examination are referred to as 'leavers'.

Table 47

Wastage Rates of all Alternative & Control Students before taking the Final State Examination.

| No. of Students per Group | Alternative Students | | G.R.I. Combined Controls | | E.R.I. Combined Controls | |
|---|---|---|---|---|---|---|
| | No. of Stayers | No. of Leavers | No. of Stayers | No. of Leavers | No. of Stayers | No. of Leavers |
| First intake | 24 | 0 | 46 | 12 | 46 | 8 |
| Second intake | 26 | 0 | 36 | 6 | 53 | 12 |
| Third intake | 22 | 3 | 59 | 9 | 57 | 11 |
| Total No. of Students | 72 | 3 | 141 | 27 | 156 | 31 |
| Percentage leaving before Final State Examination | 4.0% | | 16.0% | | 16.5% | |

There is no doubt at all about the impressiveness of the alternative students' performance in this part of the evaluation; and if the development of such a course could so radically reduce wastage this in itself would be sufficient to recommend its perpetuation. Whilst, however, it would be churlish to detract from these excellent results, two factors must be borne in mind in this discussion. Firstly, there can be no doubt at all that a special feeling of group loyalty and responsibility was originally engendered by this experiment, and was particularly noticeable among the first group of alternative nurses. In such a situation special factors other than vocation and job-satisfaction are at work, and they are not likely to persist if such an experiment becomes part of a traditional pattern. There is indeed evidence to support this point. In other countries, notably Canada, the U.S.A. and Scandinavia, where similar courses have been carried out with even more carefully selected students, a small but persistent wastage of approximately 8 to 10 per cent. has been noted, and is probably ineradicable.[1]

The next table, No. 48 indicates how educational and personal background influences the percentage of students leaving before taking the Final State Examination in each of the sub-groups listed.

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1. For reduced rates of wastage in the two similar Canadian experiments see Chapter II, pp 28+30, and for reference to reduction of wastage in Finnish 2½ year course see Chapter II, p. 33.

Table 48 Rate of Wastage of Alternative & Control Students in terms of background characteristics.

| | Alternative Students | | | | G.R.I.Combined Controls | | | | E.R.I.Combined Controls | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stayers | | Leavers | | Stayers | | Leavers | | Stayers | | Leavers | |
| | No. | % | No | % | No. | % | No | % | No | % | No | % |
| students leaving school <17.0 years | 8 | 11.1 | NIL | 0.0 | 71 | 50.3 | 16 | 59.2 | 57 | 36.5 | 15 | 48.4 |
| students who have no.S.L.C. | 3 | 4.2 | NIL | 0.0 | 82 | 58.1 | 20 | 74.0 | 51 | 32.7 | 16 | 51.8 |
| students who have held non-nursing jobs | 12 | 16.6 | NIL | 0.0 | 49 | 34.7 | 15 | 55.5 | 14 | 8.9 | 7 | 22.9 |
| No. of stayers and leavers | 72 | | 3 | | 141 | | 27 | | 156 | | 31 | |

The main point illustrated by this table is that, as far as the control nurses are concerned, the proportion of leavers is usually higher amongst certain types of students, such as those who left school before the age of 17.0, amongst those who had no School Leaving Certificate, and also those who had previously held another type of post before nursing. All these characteristics as the table shows, are more commonly found amongst the control nurses which must predispose them to a higher wastage rate than the alternative groups.

The next table No. 49 compiled from official records gives some idea of the causes of wastage amongst the fifty-eight control

students and three alternative students who have left before taking their Final State Examination.

Table 49 The Causes of Wastage amongst all Alternative & Control Students up to the time of taking Final State Examination

| | 1956-1958 | 1955-1957 | 1955-1957 |
|---|---|---|---|
| Reasons for Discontinuation of Training | Alternative Students | G.R.I. combined Control Students | E.R.I. Combined Control Students |
| educationally unsuitable | - | 9 | 3 |
| dislike of nursing | 1 | 5 | 13 |
| poor health | 2 | 8 | 3 |
| home circumstances (removal of parents) | - | 1 | 5 |
| personal - not specified | - | 3 | 2 |
| marriage | - | - | 4 |
| homesickness | - | 1 | 1 |
| total number leaving | 3 | 27 | 31 |
| total number of students in group | 75 | 168 | 187 |

It will be seen from table No. 49 that the first three causes listed, educational unsuitability, dislike of nursing and sickness, were the main reasons for the discontinuation of these sixty-one students. The educational and intellectual superiority of the alternative students, and the effect of these factors upon wastage during training, which has already been noted, is illustrated even more clearly in this last table. This factor has accounted for the loss of twelve control students but not one alternative student. Sickness absence too has been discussed in the earlier part of this chapter, and again the figures in this table indicate that, when allowance has been made for the variation in size between the alternative and control groups of students, there is a slight improvement attributable to the experimental course.

The third item on this list, dislike of nursing does, however, takes a considerably higher toll of the control students. Admittedly this heading has been used here in its broadest sense including any reason from dislike of hospital discipline to fear of the patients in the early months of the course. But it nevertheless indicates a considerable lack of congeniality and enjoyment of the course amongst the control students, as compared with the alternatives, only one of whom left for this reason. The conclusion, therefore, would seem to be that the principal 'avoidable' causes of wastage occurring in the control groups have been greatly reduced, or eliminated, amongst these particular alternative students.

The other various reasons for discontinuing training listed in the last four columns of table No. 49 - home circumstances, marriage, homesickness and the 'personal' reasons - account for only 27.9 per cent. of all this wastage as compared with 72.1 per cent. in the first three categories already mentioned. These particular causes are, however, less likely to be eradicated by changing the method of training, and it is considered that a small hard core of wastage is likely to be attributable to such reasons amongst any group of student nurses. The alternative nurses had, in fact, no loss in these particular categories, but it is unlikely in the event of the new course becoming a permanent feature that this perfect record would be maintained.

## Section V

## Chapter XII

### The Performance of the Alternative, Interne Nurses compared with the Control Staff Nurses

It will be recalled that this experiment was not only concerned with the progress of the alternative nurses as students in their first two years, but had made provision for a third, interne year which they were all to spend as acting staff nurses in their parent hospital for the first six months, with the option of specialising as post-graduate students in one of the other hospitals previously visited during the second six months, if they so desired. This interne year was, in fact, serving a dual purpose in the experiment, since it had been stipulated by the General Nursing Council that this third year must be carried out under supervision before registration was achieved. It had also been stated as a firm objective of this course that it was desired to extend the number of trained staff available to the hospital service.

There was little doubt, therefore, that the evaluation of this course must include some positive method of assessing this interne year. It was equally certain also that no pattern of evaluating this particular phase of the experiment was known to exist; and as already indicated no specific attempt had been made to assess the

contribution of the Canadian nurses in the Toronto experiment who also had to undertake an interne year before achieving registration.[1] It seemed, however, that to make any exact measurement of the competence of the alternative nurses in this year it would be necessary once more to compare them directly with some comparable control group of nurses in the wards of Glasgow Royal Infirmary. In fact, the most logical and desirable plan was to formulate some periodic method of assessing the alternative nurses in their third year together with the control nurses already included in this study, as they entered their fourth year as staff nurses.

Detailed planning of this aspect of the assessment necessitated several discussions and considerable planning with the Matron of Glasgow Royal Infirmary during the summer of 1958, as the first group of alternative nurses entered their interne year on 23rd September, 1958. In principle it was agreed that periodic observations of the alternative and control staff nurses should take place on wards. It was envisaged that experienced nurses such as sister tutors or ward sisters should undertake this task, and that, if possible, this project should be carried out on not less than three occasions during the course of each interne year, at the beginning, in the middle and towards the end of this period.

1. A more serious attempt at the evaluation of the interne year had been made in the Community College experiment in the U.S. See Chapter II, but these American internes were all taking post-graduate appointments in hospitals for the first time, so that the situation was not comparable with the Glasgow pattern.

Another important decision was that these periods of observation should be carried out by internal and external observers, so that the impartiality of the outsider could be balanced by the closer understanding of the internal observer about the routine and standard of nursing care in this particular hospital.

Proceeding from these principles it was further decided that each period of observation should last for two and a half hours in each ward or department on which an alternative or control nurse was working. Some sessions of observation, in fact as many as could be conveniently arranged, were to take place in the mornings, when the wards were very busy, some in the afternoon, and others in the evenings. The observers were to work in pairs, one external and one internal, and would each see an equal number of control and alternative nurses during a two-week period. This necessitated inviting four external observers and four internal observers to assist in this work on each occasion. The former group were seconded from the two hospitals who had nurse-members on the Assessment Committee[1] and the latter were ward sisters appointed on each occasion by the Matron of Glasgow Royal Infirmary.

Each pair of observers were to mark and comment on their observations independently and were provided with a specially-prepared booklet for this purpose on each occasion. They were requested to use the marks and ratings listed below for each session of observation.

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1. Edinburgh Royal Infirmary and Western General Hospital, Edinburgh.

Observers' Marks and Comments carried out during each Observation

Session in Glasgow Royal Infirmary

| Subject | Marks | Sub-headings for guidance in Marking and Comments |
|---|---|---|
| Ward Administration | 20 | a) acting as ward sister's deputy<br>b) organisation of ward routine<br>c) delegation of duties to nursing staff<br>d) co-operation with medical, ancillary and domestic staff. |
| Method and Technique | 20 | a) standard of nurse's technique<br>b) mehtod of planning own work<br>c) volume of work accomplished |
| Care of Patient | 20 | a) use of time spent with patient<br>b) planning of patient's treatment |
| Supervision of Students | 20 | a) use of time spent working with junior nurses<br>b) supervision and teaching of junior nurses<br>c) method of supervision or teaching |
| Team Leadership | 20 | a) positive or negative<br>b) respect for nurse as team leader<br>c) self-discipline and control<br>d) leadership in emergencies |
| Total | 100 | |

Such a list of the staff nurse's duties is not exhaustive, but is intended to give an outline of her principal duties in the ward team.

During the observation sessions the ward sisters were asked to absent themselves from their wards, so that the 'observee' would have an opportunity of controlling the ward situation as far as possible. It was, however, difficult for the sisters to be absent on every occasion in the earlier part of the year when the alternative or control nurse in question had not had much experience as a staff nurse.

The observation sessions included in this chapter covered the first two interne years of the experiment. The third group of alternative nurses are only just now at the beginning of their third year. During the first of these years there were twenty - four alternative nurses and twenty-four control nurses to be assessed each time; and in the second year twenty-six nurses of each group had to be included. The timing of the sessions was as follows:-

First Year

8th - 20th December, 1958
9th - 21st March, 1959
10th - 22nd August, 1959

Second Year

9th - 14th November, 1959
22ndFebruary - 5th March, 1960
1st - 13th August, 1960

Despite every effort to make this particular aspect of the evaluation as objective and scientific as possible there were

inevitable difficulties which arose once again in this field of operational research; and these discrepancies will be fully noted in the following pages of this discussion. It was considered, however, that the necessity of attempting some assessment of this interne year heavily outweighed any slight adaptations and variations which had to be made in the exact planning previously indicated.

The problems which arose in connection with this procedure were inevitable, and had to be circumvented on their own merits as the need arose. One such difficulty was that due to work load and staff changes it was necessary to change some of the observers during this period. The external observers were fortunately constant, as only five different nurses participated in the six sessions. Two of them came on all five occasions from The Royal Infirmary, Edinburgh, and two from Western General Hospital, Edinburgh.[1] This meant that out of these five regular observers there was only a slight change in personnel in the different sessions, and that they had all participated at least two or three times. The internal observers, however, numbered eight altogether. Such changes in personnel were more frequent than was desirable, although there have been fewer changes during the second year of this procedure.

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1. For the November, 1959 observation only one of the regular observers from Edinburgh Royal Infirmary and one from Glasgow Royal Infirmary spent one week on a shortened observation session.

It must also be mentioned that inevitably many of the alternative and control nurses observed were known to the internal observers; and on a few occasions the external observers also came to know to which group the 'observee' belonged. Slight variations in their style of uniform during this year also accentuated this tendency, so that the observers had to accept the additional responsibility of being as impartial as possible under the circumstances.

Another inconsistency arose in connection with the composition of the nurses in the control group. It soon became apparent that it would be impossible to include many of the official control nurses in this aspect of evaluation, as in this particular hospital the regular nurses tend to leave very shortly after registration, and so the number of nurses available to form a control group became steadily fewer as the year progressed. In December, 1958 for the first observation there were 20 established control nurses still available and 4 co-opted control nurses, who had been deferred to the February, 1959 examination on account of sickness. In March 1959 there were only 7 established control nurses, the other 21 of them being more junior staff nurses who had just passed the Final State Examination in February. By August, 1959 all the control had to be co-opted as only half of them had qualified in June, and it was necessary to make up the number with nurses who had still to take their Final State Examination in October, 1959. A similar problem has also arisen in connection with the establishment of

control groups for assessment with the second group of interne nurses, and nurses of comparable seniority to the first control group have been co-opted. Not only, therefore, was there this variation in the experience of the controls, but there could be no continuity in reviewing the progress of individual nurses, as there was in the case of the alternative group.

Lastly, it should be mentioned that invariably, during each observation session, it proved impossible to mark every nurse under each heading specified. On some occasions the presence of the ward sister made the assessment of 'ward administration' and 'team leadership' very difficult; sometimes nurses were observed working in theatres where they had no direct access to patients, or in the casualty or 'gate' department.

In the following analysis of the performance of the alternative and control nurses the tables of the observers' marks will be presented and discussed; and this will be followed by a summary of the observers' remarks and comments, indicating the reasons for the actual marks awarded. Finally, from the evidence available some attempt will be made to rationalise these findings.

## The First Interne Year

The following tables Nos. 50, 51 and 52 indicate the considerable difference in the level of performance achieved by the first group of alternative and control nurses.

Table 50 — The Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions

### The December, 1958 Ward Observation

| | | Alternative Nurses | | | G.R.I. Control Nurses | | |
|---|---|---|---|---|---|---|---|
| Subject | Observers | Average Score (out of 20) | S.E. | No. Marked | Average Score (out of 20) | S.E. | No. Marked |
| Ward Administration | External | 11.7 ± 3.7 | ± 0.9 | 16 | 14.8 ± 2.7 | ± 0.6 | 20 |
| | Internal | 12.0 ± 3.1 | ± 0.8 | 16 | 14.3 ± 3.3 | ± 0.7 | 20 |
| Method and Technique | External | 13.5 ± 3.5 | ± 0.7 | 24 | 15.6 ± 2.7 | ± 0.6 | 24 |
| | Internal | 12.6 ± 2.8 | ± 0.6 | 24 | 15.1 ± 3.0 | ± 0.6 | 24 |
| Care of Patients | External | 13.5 ± 4.3 | ± 0.4 | 23 | 15.7 ± 2.6 | ± 0.5 | 22 |
| | Internal | 12.6 ± 3.3 | ± 0.7 | 23 | 15.5 ± 2.7 | ± 0.6 | 22 |
| Supervision of Students | External | 11.2 ± 4.8 | ± 1.2 | 17 | 13.9 ± 2.9 | ± 0.7 | 19 |
| | Internal | 9.1 ± 3.9 | ± 0.9 | 17 | 12.6 ± 2.8 | ± 0.7 | 19 |
| Team Leadership | External | 11.6 ± 4.4 | ± 1.1 | 19 | 14.9 ± 2.9 | ± 0.6 | 22 |
| | Internal | 10.1 ± 4.6 | ± 1.1 | 19 | 14.4 ± 3.2 | ± 0.7 | 22 |

Table 51 The Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions

The March, 1959 Ward Observation

| | | Alternative Nurses | | | G.R.I. Control Nurses | | |
|---|---|---|---|---|---|---|---|
| Subject | Observers | Average Score (out of 20) | S.E. | No. Marked | Average Score (out of 20) | S.E. | No. Marked |
| Ward Administration | External | 12.5 ± 3.1 | ± 0.7 | 21 | 16.2 ± 1.7 | ± 0.4 | 22 |
| | Internal | 13.1 ± 3.9 | ± 0.9 | 21 | 14.9 ± 3.9 | ± 0.8 | 22 |
| Method and Technique | External | 12.0 ± 4.2 | ± 0.9 | 23 | 15.4 ± 2.4 | ± 0.5 | 23 |
| | Internal | 12.8 ± 4.1 | ± 0.8 | 23 | 15.1 ± 2.0 | ± 0.4 | 23 |
| Care of Patients | External | 11.7 ± 4.3 | ± 0.9 | 22 | 15.7 ± 2.4 | ± 0.5 | 22 |
| | Internal | 12.6 ± 4.2 | ± 0.9 | 22 | 15.1 ± 2.0 | ± 0.4 | 22 |
| Supervision of Students | External | 8.7 ± 5.9 | ± 1.3 | 20 | 13.6 ± 4.0 | ± 0.9 | 19 |
| | Internal | 9.1 ± 5.7 | ± 1.3 | 20 | 13.6 ± 3.9 | ± 0.9 | 19 |
| Team Leadership | External | 10.7 ± 4.8 | ± 1.0 | 22 | 16.0 ± 2.4 | ± 0.6 | 18 |
| | Internal | 12.4 ± 4.0 | ± 0.8 | 22 | 15.4 ± 2.8 | ± 0.6 | 18 |

Table 52 — The Performance of the First Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Session

The August, 1959 Ward Observation

| | | Alternative Nurses | | | G.R.I. Control Nurses | | |
|---|---|---|---|---|---|---|---|
| Subject | Observers | Average Score (out of 20) | S.E. | No. Marked | Average Score (out of 20) | S.E. | No. Marked |
| Ward Administration | External | 12.6 ± 5.1 | ± 1.1 | 23 | 14.4 ± 3.0 | ± 0.6 | 23 |
| | Internal | 12.3 ± 4.5 | ± 0.9 | 23 | 13.9 ± 2.8 | ± 0.6 | 23 |
| Method and Technique | External | 12.4 ± 4.7 | ± 0.9 | 24 | 14.8 ± 2.5 | ± 0.5 | 24 |
| | Internal | 10.8 ± 4.0 | ± 0.8 | 24 | 13.5 ± 2.3 | ± 0.4 | 24 |
| Care of Patients | External | 13.1 ± 3.9 | ± 0.8 | 24 | 14.4 ± 2.1 | ± 0.4 | 24 |
| | Internal | 11.3 ± 4.4 | ± 0.9 | 24 | 14.2 ± 2.0 | ± 0.4 | 24 |
| Supervision of Students | External | 11.4 ± 5.7 | ± 1.2 | 24 | 12.2 ± 3.5 | ± 0.8 | 20 |
| | Internal | 8.3 ± 4.5 | ± 0.9 | 24 | 10.8 ± 3.3 | ± 0.7 | 20 |
| Team Leadership | External | 12.5 ± 5.4 | ± 1.1 | 24 | 14.5 ± 3.1 | ± 0.7 | 23 |
| | Internal | 10.8 ± 4.2 | ± 0.8 | 24 | 13.9 ± 2.4 | ± 0.5 | 23 |

It is immediately apparent from these tables that throughout the year, under every heading, the standard achieved by the alternative nurses has been less satisfactory than that of the controls. The difference was in fact great enough to make it statistically significant at the p= 0.05 level throughout the first two sessions of observation for both groups of observers, with the exception of the internal observers whose marking of 'ward administration' in the March session did not quite reach the level of technical significance in favour of the controls. During the August observation, however, although the control performance was still superior to the alternatives it was not significantly different according to the external observers. The internal observers' marks, however, still indicated the same wide variation in the two groups of nurses. It has already been noted that there was greater constancy in the external observer team, and indeed there could be a greater degree of impartiality amongst these assessors, who were less aware of the identity of the nurses they observed. During this last observation session in August, 1960 it so happened that both the internal observers were new to this procedure, so that it is possible that the degree of improvement of the alternative standard recorded by the more experienced external observers at this time may be regarded as the more reliable evidence.

Another factor which should be remembered is that the control group of nurses, as already mentioned, actually became more junior as the year progressed. Therefore, by the end of the year

/the

two groups had been nursing for approximately the same length of time.

In any case, whatever interpretation is placed upon these figures they are undoubtedly indicative of a reversal in the standard of performance between the alternative and control groups of nurses, compared with the student phase when the former group had always equalled and frequently exceeded the latter. The following synthesis of the many comments made by the observers during these sessions reveal some of the difficulties which faced the alternative group of nurses in this interne year in the various aspects of their work.

The main comments made by the observers on 'ward administration' indicated several noticeable defects in the alternative group. These included a lack of ability to delegate tasks to junior student nurses, sometimes to the extent of the ward, in sister's absence, being unobtrusively organised by the junior nurses. This difficulty arose also in connection with the domestic staff, and quite frequently the lack of confidence of this group in approaching such personnel was very evident. Another point made persistently was that they found considerable difficulty in planning ward routine, and particularly in improvising to meet an emergency or sudden influx of patients. Lastly, under this heading many comments were made about the lack of initiative shown by these alternative nurses when they were left, as they mostly were during these observation sessions, to organise ward routine in the absence of the ward sister. The gap in performance under this heading had, however, considerably narrowed according to the external observers

between March and August, 1959, and there was no doubt from the comments made then that greater assurance and confidence was being displayed by all but about 25 per cent. of these nurses by the end of the interne year.

The tables show rather less fluctuation in the performance of the alternative nurses under the second heading, 'method and technique', although again at the end of the third year they showed a marked improvement over the beginning, in the opinion of the external observers only. The criticisms of this aspect of their duties can be summarised under three points. Firstly, that certain treatments, such as patients' dressings involving the practice of aseptic technique were faultily executed. The administration of medicines and the taking of temperature, pulse and respirations were also criticised as being carelessly and perfunctorily performed, and the treatment of pressure areas also came in for adverse comment in these same terms. Secondly, it was noted quite often that the method of preparing equipment, as well as an extravagant use of materials, lacked planning and detracted from the smooth operation of the technique. Lastly, there was an obvious slowness in the work of quite a number of the alternative nurses, and the volume of work performed - though this is not necessarily a criterion of good nursing - was not impressive.

The impression given to the observers was that the alternative nurses were generally thoughtful about and interested in their patients, but again some of them were in difficulty because they lacked confidence in planning for and making direct contact with them. This made itself apparent in an attitude of

aloofness and off-handness at times towards the patients, although the observers nearly always ascribed this to lack of confidence rather than to real disinterest. Another trait which was commented upon under this heading was their lack of ability to understand on some occasions the additional observation and care required by the seriously ill patients. There was a tendency to give equal attention to all patients, irrespective of whether they were unconscious, receiving some type of intravenous transfusion, or semi-convalescent. Again, the observers indicated that such thoughtlessness sprang from lack of experience rather than any neglect of duty.

The supervision of students is never an easy role for the ex-student to carry out, and again most of the criticisms raised against the alternative nurses could be traced to their own sense of insecurity and lack of confidence. It was noted that they often lacked that essential ability to organise themselves in the first place which is the sine qua non of authoritative delegation. Delegation was thus often spasmodic and instructions not precise; above all they tended, especially in March, where the discrepancy in their performance was very noticeable, to run around performing themselves tasks they had previously left to others. By August, 1959, however, both internal and external observers agreed that the alternatives had improved in this respect, and some attempt was being made by quite a number of these nurses to supervise junior colleagues.

The assessment of such a quality as 'team leadership' was less easy for the observers and left more scope for their own

subjective inclinations, especially as they hardly ever witnessed any emergencies which would have revealed latent leadership qualities in either alternative or control nurses. Nevertheless, to the experienced eye, there emerged quickly a sense of leadership and guidance in the team, if indeed the person placed in command had that quality. But it was noticeable again that this attribute seemed to be more evident amongst the control rather than the alternative nurses. The difference in marks was especially noticeable in March. Once again in August, according to the external observers, the gap had narrowed, a promising sign for the progress of the alternative group.

It is only fair to mention that similar disabilities and inefficiences to the ones discussed above were noticed amongst the control nurses also on every occasion. They were in no way the prerogative of the alternative group, but the essential difference was that, as the marks indicate, they were more apparent and occurred more frequently amongst the alternative nurses.

Having looked briefly at the comments made by the observers it is important to attempt an explanation of the poorer performance of the alternative nurses. This interne year, as everyone agreed, was an important test of the experimental course, when any difference due to the altered method of training would become apparent. The alternative nurses had shown that as students they could perform at least as well and sometimes better than the control group in both theoretical and practical situations, and yet during this interne year their performance was undoubtedly less impressive.

There are probably two good reasons for this finding.

In the first place, the abrupt change in status and responsibility which came to these alternative nurses at the beginning of this interne year must have affected all aspects of their work. For two years as students they had been in a sheltered position, working only a forty-hour week, and doing only about four or five weeks night duty during this time. But suddenly in the third year all the protective mechanisms had been removed, and the alternative nurses found themselves in positions of considerable responsibility in the ward team. It will be remembered that even in their sixth term these nurses had been working in quite junior positions on the ward, and that they had never as students been left in charge of a ward on night duty, which so often develops confidence and preparedness for the staff nurse role. Indeed one of the main purposes of this experiment has been to avoid the assumption of too much responsibility by the alternative students, so it is equally not surprising that their acclimatisation to a new, senior position should take a considerable time during the interne year.

After completion of the Final State Examination the alternative nurses were all working on the wards of Glasgow Royal Infirmary as acting staff nurses or 'junior-senior' nurses, and it was obvious from the comments of the ward sisters and these nurses themselves that they had a great deal to learn about the routine of ward administration, even in its simplest form.[1] Many of these new duties which were puzzling to them were already quite familiar to the regular staff nurses in their fourth year, and undoubtedly

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1. For further details of these opinions see Chapter XIV, pp. 253, 254, 255 to 259.

the alternative nurses were extremely preoccupied by these new problems.

It is probable that this situation had a direct effect upon the way in which the alternative nurses approached all aspects of their work, and that the apparent deterioration in their standards of nursing techniques and patient care during this year was attributable to this factor. In any case, they had less opportunity of practising their skills and procedures than the control staff nurses, so that they were certainly in the earlier part of the year at a considerable disadvantage in a number of ways. This assumption is borne out by the observers who all commented repeatedly that the alternative nurses who strove to plan the ward administration and routine tended to lose some precision and attention to detailed nursing care, whilst others obviously did not really attempt to control the ward because they were preoccupied with the carrying out of procedures themselves. It seemdd as though they had considerable difficulty in striking a balance between these two different functions.

From the tables at the beginning of this section it is also apparent that there was still a considerable gap in the alternative nurses' performance at the end of their third year, even in the opinion of the external observers. But this does not mean that at some later point the alternative nurses may not equal or even surpass the comparable controls, though there was nothing that could be done to assess this point. As table 60 indicates all the alternative nurses left the hospital within a few months of

completing their third year, so that further observation was impossible.[1] It may be that the additional supervision given to these alternative nurses throughout their first two years by the clinical instructors had restricted them, and that the price to be paid for this new technique would be a much longer period of adjustment in order to attain the fuller maturity achieved more rapidly by the regular three year nurses.

There is, however, a second factor which may also explain to a considerable degree the rather disappointing performance of these alternative nurses. They were, after all, the first interne group, and inevitably there were special difficulties for themselves as well as for those with whom they were working at this time. There was no precedent for this particular nursing group in the annals of British nursing, and it was difficult for anyone to know what to expect of such a group who had passed their Final State Examination at the end of two years.

Not unnaturally, the first group of alternative nurses were at a special disadvantage as they worked their way through this year. Some adjustment of attitude and expectation was as much required of the nursing administrators and ward sisters as of themselves. Moreover, as noted before, this experimental group were working in a hospital where the regular trainees were qualifying three times a year, and for a few months after completing registration they too had to get experience as staff nurses on the wards. The administrative problems of arranging satisfactory assignments

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1. For Table 60 see Chapter XIII, p.243 - Follow-Up Study.

for both the alternative and regular nurses who had passed their Final State Examination were, therefore, considerable.

The Steering Committee had laid down in its objective that these alternative nurses should rank as acting staff nurses in this interne year, but the difficulties of implementing this recommendation for the first group is illustrated in table No. 53 which shows the different status and position held by them at the time of the three observation sessions.

Table 53 Status of First Group of Alternative nurses on their wards at time of Observation Sessions

| Status of Alternative Nurses | December, 1958 | March, 1959 | August, 1959 |
|---|---|---|---|
| No. of acting staff nurses | 14 | 10 | 12 |
| No. of junior-senior nurses on general wards | 9 | 7 | 8 |
| No. of junior-senior nurses on specialty wards | 1 | 7 | 3 |
| No. of nurses working outside Glasgow Royal Infirmary | - | - | 1 |

In fact at the end of the interne year there were as many of the alternative nurses who were not acting staff nurses as there had been at the beginning. This arrangement is partially explained by the fact that some of the wards in Glasgow Royal Infirmary are specialised departments, such as the burns and

plastic surgery unit and the urological wards, where it is necessary for an experienced staff nurse to act as the ward sister's deputy. On such units, it was, of course, unfair to appoint an interne nurse to such a position, and this also added to the problem of placement.

Nevertheless, it has to be admitted that the impression gained from a study of Table 53 is one of lack of planning of this part of the experimental course, both as regards status and the acquisition of specialised experience. It is inevitable that such uncertainty as to status on the wards must to some extent have deprived the alternative nurses of confidence and affected their morale. Some of these interne nurses spent most of the year as acting staff nurses, whilst others hardly achieved this status, or were even demoted as the year progressed. There may have been some purpose behind this method of allocating responsibilities, but there was no evidence from the data available of any correlation between personal ability of the individual alternative nurse and ward rank during this year.

## The Second Interne Year

The results of the first year's observation programme reversed any doubts there might have been as to the necessity of carrying on with this fairly elaborate procedure, which demanded not only organisation within Glasgow Royal Infirmary, but also considerable time and interest on the part of both sets of observers. Arrangements were accordingly made to carry on with these periodic

observations and, as already noted, a further three sessions took place during this year, the second and third of them coinciding almost exactly with the timing of similar first year sessions. It was only possible to arrange an abbreviated one-week observation session at the beginning of this second year in November, 1959, when one external and one internal observer together assessed one half of the alternative nurses only. This divergence need not, however, be viewed too seriously, since the more continuous presence of the ward sisters during this early part of the interne year makes effective observation difficult in any case. In order to get some idea of the comparative level of the alternative nurses at this point the marks achieved by the control nurses in the December, 1958, session have been used in table No. 54.

Both the external and internal observers, who participated in this second year's observation, had all assisted in this procedure on at least two previous occasions, so that they were well acquainted with the project, and could now give a clear impression of a relatively good or bad performance of any nurses observed. Care was also taken to match the seniority of these second control groups with that of the first year's controls for the observation sessions.

Table 54 The Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions

The November, 1959 Ward Observation

| | | Alternative Nurses | | G.R.I. Control Nurses * | | |
|---|---|---|---|---|---|---|
| Subject | Observers | Average score** (out of 20) | No. Marked | Average score (out of 20) | S.E. | No. Marked |
| Method & Technique | External | 10.8 | 13 | 15.6 + 2.7 | ± 0.6 | 24 |
| | Internal | 11.2 | 13 | 15.1 ± 3.0 | ± 0.6 | 22 |
| Care of Patients | External | 11.1 | 13 | 15.7 ± 2.6 | ± 0.5 | 22 |
| | Internal | 13.5 | 13 | 15.5 ± 2.7 | ± 0.6 | 22 |
| Supervision of Students | External | 7.4 | 8 | 13.9 ± 2.9 | ± 0.7 | 19 |
| | Internal | 5.1 | 8 | 12.6 ± 2.8 | ± 0.7 | 19 |

* Figures quoted in this column are those achieved by the control nurses in December, 1958.

** Standard Deviation and Standard Error of Mean have been omitted from this part of the table on account of the small number of alternative students participating in this observation.

Table 55 The Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions

The February-March, 1960 Ward Observation

| | | Alternative Nurses | | | G.R.I. Control Nurses | | |
|---|---|---|---|---|---|---|---|
| Subject | Observers | Average Score (out of 20) | S.E. | No. Marked | Average Score (out of 20) | S.E. | No. Marked |
| Ward Administration. | External | 13.4 ± 3.3 | ± 0.7 | 20 | 14.6 ± 2.7 | ±0.7 | 19 |
| | Internal | 13.1 ± 3.2 | ± 0.7 | 20 | 15.4 ± 1.8 | ±0.4 | 19 |
| Method & Technique. | External | 12.4 ± 4.3 | ± 0.9 | 23 | 14.2 ± 2.2 | ±0.5 | 20 |
| | Internal | 12.3 ± 2.9 | ± 0.6 | 23 | 13.1 ± 2.6 | ±0.6 | 20 |
| Care of Patients | External | 13.6 ± 3.6 | ± 0.8 | 19 | 14.1 ± 3.2 | +0.7 | 21 |
| | Internal | 13.0 ± 2.7 | ± 0.6 | 19 | 14.0 ± 2.6 | ±0.6 | 21 |
| Supervision of Students | External | 10.5 ± 4.5 | ± 1.1 | 17 | 12.0 ± 3.4 | ±0.7 | 20 |
| | Internal | 11.3 ± 2.6 | ± 0.6 | 17 | 21.1 ± 2.3 | ±0.5 | 20 |
| Team Leadership. | External | 11.8 ± 4.6 | ± 1.1 | 19 | 14.1 ± 3.4 | ±0.7 | 21 |
| | Internal | 12.7 ± 3.0 | ± 0.7 | 19 | 14.8 ± 2.0 | ±0.4 | 21 |

Table 56. The Performance of the Second Group of Alternative and Glasgow Royal Infirmary Control Nurses in the Ward Observation Sessions

The August, 1960 Ward Observation

| | | Alternative Nurses | | | G.R.I. Control Nurses. | | |
|---|---|---|---|---|---|---|---|
| Subject | Observers | Average Score (out of 20) | S.E. | No. Markd. | Average Score (out of 20) | S.E. | No. Markd. |
| Ward Administration. | External | 13.0 ± 3.9 | ± 0.9 | 16 | 14.8 ± 1.7 | ± 0.4 | 15 |
| | Internal | 12.2 ± 2.8 | ± 0.7 | 16 | 14.4 ± 2.5 | ± 0.6 | 15 |
| Method & Technique | External | 12.7 ± 3.4 | ± 0.7 | 22 | 14.6 ± 1.7 | ± 0.3 | 23 |
| | Internal | 12.1 ± 2.7 | ± 0.6 | 22 | 12.9 ± 3.2 | ± 0.7 | 23 |
| Care of Patients | External | 13.6 ± 3.6 | ± 0.8 | 21 | 14.2 ± 2.9 | ± 0.6 | 22 |
| | Internal | 12.3 ± 2.8 | ± 0.6 | 21 | 13.1 ± 3.1 | ± 0.7 | 22 |
| Supervision of Students | External | 11.1 ± 3.8 | ± 0.9 | 17 | 12.8 ± 2.1 | ± 0.5 | 15 |
| | Internal | 11.1 ± 3.1 | ± 0.8 | 17 | 11.7 ± 1.9 | ± 0.5 | 15 |
| Team Leadership. | External | 12.6 ± 3.5 | ± 0.8 | 18 | 13.7 ± 2.4 | ± 0.6 | 17 |
| | Internal | 12.2 ± 3.3 | ± 0.8 | 18 | 13.2 ± 3.4 | ± 0.8 | 17 |

This second set of tables based on a further year's observation of the alternative nurses performance in the interne year illustrates a similar trend to the first. In every one of the three sessions the alternative students' average marks are always less than those of the controls according to both the internal and external observers. There are, however, differences in the extent of this trend as between the first and second interne years which merit some closer consideration.

Table 54 indicates that during the November, 1959 session the performance of the alternative nurses was even less satisfactory than it had been a year earlier. It has already been suggested that it would not be wise to attach too much significance to this observation carried out in the face of several disadvantages. Firstly the results only relate to one half of the alternative group who were observed during November, 1959; and the control data used for comparison was based on the December, 1958 performance. Lastly, the ward sisters were so much in evidence during this early session that insufficient students could be rated under the headings of 'ward administration' and 'team leadership' for inclusion in the table. Nevertheless, it is clear from the evidence available that their performance was at this time significantly less satisfactory than that of the control staff nurses.

There is, however, a noticeable improvement in the standard of the alternative nurses during the second and third sessions carried in February-March and August, 1960, illustrated in tables 55 and 56. The control nurses still achieve a higher mean under every heading

of the observation but the discrepancy is generally less marked, and is only significant on one or two occasions. It was a fortunate coincidence that exactly the same observers participated in these last two sessions, so that some direct comparison of marks gained may be permissible. This analysis shows that there is hardly any difference in the alternative nurses' performance as between the middle and end of this second interne year; except that under the heading of 'ward administration' they have not achieved quite such a good average in August. The control nurses too show little variation, except that in August their standard is slightly lower than it was in February-March, which is entirely understandable since they were a less senior group of staff nurses. In fact, as in the previous August, about one half of them still had to take their Final State Examination in October, 1960.

The most surprising feature of this observation session is, however, that the alternative nurses having considerably improved their performance by the middle of this interne year have not further narrowed the gap by the end of it, especially when they are assessed with a more junior control group of nurses, most of whom have only been nursing for a few months more than themselves. Before proceeding to discuss the rationale of this situation it is again of interest to note the comments made by the observers on the marks awarded during this second interne year.

In both February-March and August, 1960, the comments of the observers are similar in type, although rather more favourable to the alternative nurses than they were in the first interne year.

It is still apparent that the observers consider that a greater number of the control nurses were competent in all aspects of their work; but undoubtedly a higher percentage, at least one third, of the alternative nurses were also included in this category, and only six out of the forty-eight of them observed on these two occasions were reckoned to be ineffectual and notably below the average ability of a staff nurse.

From the observers' comments two impressions emerge clearly about these last months of the second interne year. Firstly, that these alternative nurses showed greater aptitude and ability in delegating duties to junior colleagues than did their own predecessors a year earlier, and secondly a higher percentage of them in this second year are able effectively to continue administrative and nursing duties without one or other function being submerged in the periodic rush of ward crises and pressure of events. Even so, as the marks indicate, the overall impression gained from these observation comments is slightly more favourable to the control nurses under every heading.

The noticeable improvement in the performance of the alternative nurses in this second interne year is not wholly fortuitous. There are two or three reasons which are likely to explain these better results. In the first place, this second group of alternative nurses had, for some reason, always appeared a better integrated and more relaxed group than the first intake. This could well be attributable to the fact that they were made less aware of their 'experimental' status, as tutors, instructors and all the nursing

staff of the hospital were also more confident in directing them and understanding their requirements. A second positive factor during this year was the more precise planning of the alternative nurses' experience. From the beginning of this year arrangements were made to allocate these nurses to the wards in pairs in such a way that for the first few weeks after arrival each of them was usually working as the "junior-senior", or third member of the nursing team, whilst her colleague who had been on the ward for a longer period was the acting staff nurse and ward sister's deputy. After undertaking this more senior role for six or eight weeks she was then made senior night nurse of the same ward for a further period of about six to eight weeks. There were inevitably exceptions to this plan, but on the whole it has been fairly rigidly adhered to, and may well have helped to give these nurses a greater sense of security and purpose in this year than their predecessors had experienced in the first interne year. Table No. 57, which may be compared with table No. 53 earlier in this chapter, certainly indicates that this second group of alternative nurses had been given greater experience in a senior staff nurse role.

Table 57 Status of Second Group of Alternative Nurses on their wards at the time of Observation Sessions

| Status of Alternative Nurses | November 1959* | February - March 1960 | August 1960 |
|---|---|---|---|
| No. of acting staff nurses | 3 | 12 | 18 |
| No. of junior-senior nurses on general wards | 10 | 9 | 1 |
| No. of junior-senior nurses on specialty wards | 1 | 5 | 4 |
| No. of nurses working outside G.R.I. | - | - | 3 |

* Only fourteen out of the twenty-six alternative nurses were observed on this occasion.

It was, therefore, disappointing to learn that by the end of the second interne year there was still a gap, though not a significant one, in the performance of the alternative and control nurses. The explanation of this lack of progress in these later months of this interne year may, however, be attributed to the fact that a certain number of this second alternative group had spent varying lengths of time outside Glasgow Royal during this period. Whereas only one nurse of the first intake had chosen to spend her second six months in the paediatric hospital, where she had been assessed in August, 1959, no fewer than nine nurses of this second intake had spent several months outside Glasgow Royal Infirmary. Six of them had been in the Glasgow Eye Infirmary for three months from the seventh to the tenth month of the year, and the other

three nurses were all spending the last six months at the Glasgow Royal Mental Hospital, and were brought back to the Royal Infirmary for the last observation session in August, 1960[1].

The fact that this greater number of the second group of nurses had decided to make use of their optional right to get additional experience outside Glasgow Royal Infirmary in this last half of the interne year cannot be definitely claimed to have affected the outcome of this last observation session; but it would seem that the policy of allowing these alternative nurses to undertake further specialisation outside Glasgow Royal Infirmary during this interne year might well be questioned. Even although their performance at the end of the second year was undoubtedly nearer the control level than at the end of the first, it was still evident that many of them needed more experience in the wards of the parent hospital before they were ready to proceed as fully-fledged staff nurses or to undertake further specialisation as post-registration students.

The conclusion has reluctantly to be reached once again that in some way the performance of these alternative nurses in this interne year has fallen below expectation: on the other hand, there has been a considerable improvement in the performance of this second alternative group, who have shown signs of responding to a greater understanding of their special needs at this stage of their course.

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1. The decision to bring them back to the parent hospital for assessment was made for various reasons, but it may have been difficult for these three nurses in question to settle to their new assignment before being assessed, although there is no indication of this in the marks or comments of the observers.

The Performance of the Interne Nurses related to their Educational and Intellectual Characteristics.

In this discussion of the performance of the alternative nurses in the interne year no reference has so far been made to the relationship between their individual abilities and the marks they have achieved; but for various reasons this aspect of analysis is not likely to be as useful as it has been in the earlier discussions on the examination and test achievements in Chapters VIII, IX and X. In the first place it is not possible to compare the performance of the alternative and control groups, since the latter, as already indicated, varied considerably from one observation to another and only a few of them in the earlier parts of the year belonged to the original control groups. Secondly, it has also been noted that there was no specific policy controlling the promotion and seniority of the alternative nurses as the year proceeded, so that on certain occasions some of them had achieved a greater confidence and status on the wards than others. Moreover, this development was also affected to some extent by the type of ward or department, general or specialty, in which the nurse was working.

Bearing in mind these obvious irregularities the two following tables indicate the extent to which educational and intellectual characteristics have affected the performance of both groups of alternative nurses. The same classification of ability has been used as in the analysis of the General Nursing Council, multiple choice and ward practical tests.

The mean scores recorded in these tables have been compiled

from the total marks awarded to each student observed under the five headings listed in the previous tables in this chapter. The results have been presented in percentage form to allow for adjustment to be made for certain gaps in the marking which, as already indicated, occurred on various occasions when the observers were unable to award a valid rating under certain sections.

Table 58 The Performance of the Alternative Nurses in the First Interne Year in terms of Educational and Intellectual Standards

| Educational & Intelligence Standard | December, 1958 | | March, 1959 | | August, 1959 | |
|---|---|---|---|---|---|---|
| | Mean Score % | No. in Group | Mean Score % | No. in Group | Mean Score % | No. in Group |
| 2 or more academic highers | 61.5 | 9 | 51.7 | 8 | 56.3 | 9 |
| less than 2 academic highers | 60.0 | 14 | 61.3 | 14 | 58.0 | 14 |
| no school leaving certificate | 71.0 | 1 | 76.5 | 1 | 77.5 | 1 |
| intelligence score 130 | 63.3 | 14 | 57.5 | 13 | 59.5 | 14 |
| intelligence score 130 | 58.8 | 10 | 57.1 | 10 | 56.2 | 10 |

Table 59 The Performance of the Alternative Nurses in the Second Interne Year in terms of Educational and Intellectual Standards

| Educational & Intelligence Standard | November, 1959 | | February to March, 1960 | | August, 1960 | |
|---|---|---|---|---|---|---|
| | Mean Score % | No. in Group | Mean Score % | No. in Group | Mean Score % | No. in Group |
| 2 or more academic highers in school leaving cert. | 49.6 | 8 | 64.8 | 16 | 63.8 | 13 |
| less than 2 academic highers | 50.4 | 4 | 56.4 | 6 | 61.4 | 8 |
| no school leaving certificate | 64.3 | 1 | 68.0 | 1 | 43.3 | 1 |
| intelligence score $>130$ | 50.9 | 11 | 63.2 | 19 | 63.4 | 17 |
| intelligence score $<130$ | 51.3 | 2 | 58.4 | 4 | 57.9 | 5 |

The immediate impression gained from these tables is that there seems to be little relationship between marks achieved and the nurses' academic or intellectual standard. The intelligence score is rather more reliable than educational level, but the numbers in all groups are small and none of the variations recorded between them are statistically significant. It is obviously not wise to make firm predictions on these data for the reasons already mentioned, but nevertheless these results do suggest that educational and intellectual ability may be less important factors in relation to success after the completion of the Final State Examination than before it. It

may also be that the development of maturity and personal responsibility, which appeared to have taken a second place during the student phase of the experiment, are equally important qualities at this later stage in the course.

CHAPTER XIII

## The Follow-Up Study

The need to try and follow the progress of as many of the alternative and control nurses as possible after they had completed their student courses required no emphasis. In fact, if such an undertaking can be carried out successfully, it will provide the answer to the ultimate long-term success of the experiment. This aspect of evaluation includes all the 430 alternative and control nurses in this study; but it has to be mentioned that the success of this operation depends entirely upon the voluntary co-operation of all these nurses, who cannot be coerced, but merely asked to help in this project. They are all presented with a short form to complete before leaving their parent hospital giving details of their arranged or anticipated professional activities over the coming year, as well as for details of a permanent address through which they may be traced. Then a similar form is sent to these nurses at yearly intervals for five years, in order to keep in touch with their occupational status.

So far this project has been supported very successfully by the nurses concerned, one or two of the controls nurses only ignoring this request for assistance. Every endeavour will be made to develop this aspect of the evaluation as accurately as possible, but the difficulty of maintaining contact with this highly mobile group of young women is not underestimated.

The figures and data discussed in this chapter relate principally to the first group of alternative and control nurses in this study. Some information is already available on the occupations of the second control groups, but some members of the second alternative group will not be leaving Glasgow Royal Infirmary until the spring of 1961.

One of the objectives of the experimental course, it will be remembered, was to make available to the nursing profession a greater number of qualified nurses. The attainment of this objective can be assessed from two points of view. Firstly, how long did the nurses stay in their own hospital after completing their course, and secondly, what posts did they hold as qualified nurses, if and when they decided to leave their own training school?

Some idea of the variable length of time spent by these alternative and control nurses in their own hospital after taking their Final State Exam. is illustrated in table No.60. Two special points must, however, be noted in interpreting these figures. In the first place, it should be remembered that the alternatives had to give a whole year's service as interne nurses after passing the Final State Examination, if they wished to obtain full state registration under the terms of their contract. The control nurses on the other hand, had no such compelling reason to stay after passing their Final State Examination.

The second point concerns only the Edinburgh Royal Infirmary control nurses. The tradition in this hospital has been and still largely persists that a nurse is not fully qualified until she has coupleted four years in her training school. She takes her finals at the completion of three years, and is expected to spend another

year gaining experience as a qualified nurse before leaving. Until recently students at this hospital actually signed a four-year contract. Only a few of the larger training schools in Scotland have ever adopted this policy, which is now dying right out, and so the more customary pattern of departure after passing the Final State Examination is the Glasgow Royal Infirmary one.

TABLE 60

The Time at which the first group of Alternative and Control Nurses left their Training Schools after taking the Final State Examination

| Time of Leaving | Alternative Nurses | | G.R.I. Combined Control Nurses | | E.R.I. Combined Control Nurses | |
|---|---|---|---|---|---|---|
| | non-deferred | * deferred | non-deferred | * deferred | non-deferred | ** deferred |
| Before taking F.S.E. | - | - | - | 2 ** | 1 ** | - |
| 1 - 2 months after F.S.E. | - | - | 21 | 2 | 5 | 1 |
| 3 - 4 months after F.S.E. | - | - | 6 | 3 | - | 1 |
| 5 - 6 months after F.S.E. | - | - | 3 | 4 | - | 3 |
| 7 - 9 months after F.S.E. | - | - | 3 | - | - | 1 |
| 10-12 months after F.S.E. | 11 | - | 1 | - | 30 | 2 |
| 13-15 months after F.S.E. | 9*** | - | - | - | 2 | - |
| 16-18 months after F.S.E. | 4*** | - | - | - | - | - |
| 19-24 months after F.S.E. | - | - | 1 | - | - | - |
| Total Nurses in group | 24 | - | 35 | 11 | 38 | 8 |

* Deferred nurses are those who have passed their Final State Examination at a later date on account of sickness or because they have failed the examination in the first instance.

** These nurses had completed their full three-year student course before leaving

*** Some of these nurses who stayed more than twelve months after taking their Final State Examination had to do so in order to make up sickness absence, in the terms of their contract.

Table No.60 illustrates that the experimental course made available a greater supply of nurses who had completed their Final State Examination; although it equally shows that the first group of alternatives have stayed in their parent hospital no longer than the Glasgow Royal Infirmary controls after completing their three-year course. It must also be remembered that this additional supply of alternative nurses will only be available to the hospital service so long as this third year remains a compulsory part of the new course. If it were not obligatory, it is doubtful whether these alternative nurses, under present circumstances, would feel disposed to work for a longer period in their parent hospital than the controls do now.

From information already available on the second Glasgow Royal Infirmary control group it appears that the same pattern of departure is taking place. 50 per cent. of this group had left by the end of 1959, three months after passing their Final State Examination. Similarly, the second Edinburgh Royal Infirmary control group have nearly all completed the fourth year again before leaving, but the atypicality of this pattern in Scottish hospitals has already been explained. The second group of alternative nurses in recent discussions also stated that most of them will be leaving in the autumn of 1960, within two or three months of completing the interne year. Five of them have decided to stay on as staff nurses for a further six months, and two of them have to stay on for this length of time to make up for previous lengthy periods of sickness.

TABLE 61

Type of Post or Occupation chosen by first group of Alternative & Control Nurses after leaving their Training Schools

| Type of Post or Occupation | | Alternative Nurses | G.R.I. Combined Control Nurses | E.R.I. Combined Control Nurses |
|---|---|---|---|---|
| Post graduate training courses | Midwifery | 20 | 35 | 27 |
| | Psychiatric nursing | 1 | 1 | - |
| | Missionary course | 1 | - | - |
| Other Nursing Posts | Hospital * staff nurse | 1 | 4 | 4 |
| | Outside hospital | - | 1 | 1 |
| Non- Nursing Posts | | - | 1 | 1 |
| No Post held | Marriage | 1 | 4 | 4 |
| | Unknown | - | - | 9 |
| | Total Number of Nurses | 24 | 46 | 46 |

* One of two of these control nurses first of all took a post as staff nurses in their own training school after completion of their respective contracts.

The most noticeable feature revealed by this table is the occupational similarity of the work undertaken by the alternative and control nurses. The great majority in both groups have immediately taken the post-basic course in midwifery, some of them intending to take the complete course, whilst others are interested in the first part only. There are only three nurses out of the hundred and sixteen concerned who are known to have undertaken some different type of course. Marriage and posts in general hospitals as whole or part-time staff nurses have accounted for a few more of the nurses in the alternative and control groups.

This occupational trend is also being followed by the second group of alternative and control nurses as far as can be seen at present. In recent discussions with this second group of alternative nurses they nearly all indicated that they would become pupil midwives after leaving Glasgow Royal Infirmary, two were considering taking the course in psychiatric nursing, one ophthalmic nursing and two were getting married. As far as the second group of controls is concerned about 60 per cent. of them are again doing midwifery and all the others either taking further posts as staff nurses, or getting married. The pattern indicated in Table No.61 for the first group of alternative and control nurses would, therefore, seem to be confirmed.

CHAPTER XIV

## The Opinions of Nurses Associated with the Experiment

Emphasis has been placed on the collection and analysis of factual data in this study because, as previously explained, it was considered that this was the most appropriate way of assessing the measurable objectives; and secondly because it did not seem that subjective material alone would in any way do justice to the significance of the experiment. There were, however, one or two less specific purposes underlying the establishment of this new course such as the desire to make the education of the student nurse a more adult and congenial process than had hitherto been practicable, which would likely prove more assessable in terms of personal opinion than the collection of facts and figures.

During the course of this evaluation study, although no specific plans had been made to gather the opinion of personnel closely associated with it, there were many occasions on which the writer visited the wards and departments of Glasgow Royal Infirmary and the other associated hospitals to study the planning and progress of the course. In this way many informal opportunities arose for discussion of the alternative course with both ward

sisters and the students themselves, which inevitably throw some light on the reactions of these students themselves and their enjoyment of this new course. Only one planned attempt was made to collect opinions systematically, and that was during the all-important interne year when the sisters, on whose wards there was an alternative nurse working, were invited to check the status of each of these nurses and to ask the sister durectly for her personal assessment of their ability.

A summary of these opinions has been presented at this stage so that every type of evidence available as to the success of the experiment can be weighed up in the final discussion to follow. It has been included also because it became apparent that so many of the nurses concerned expressed a few opinions strongly and frequently, and those comments in turn may well give a greater depth of meaning to the factual analysis presented in the earlier parts of this study.

The Opinion of Students

In every term except the first it was possible to talk to a number of alternative students on their wards. Discussions

normally related to their professional course and progress, but occasionally they wished to express to someone outside their own group thoughts on their facilities for personal and social recreation.

The alternative students were always alert and interested in their own special position. They, for instance, were unanimous in saying that the integration of theory and practice throughout their course was extremely helpful, since it enabled them to establish good relationships quickly with the patients and with the ward staff. By this they did not mean merely that they could adjust themselves quickly to the different wards and specialty departments visited, but since they were attached to every ward for a considerably shorter number of hours than their regular colleagues the correlation of theory and practice helped them to gain more from this shorter experience.

Another strong feeling frequently expressed by the alternative students was their desire to identify themselves completely as members of the regular nursing team. Up to the fifth term, when they more or less ceased to be supernumerary, they disliked more than anything else being given the inevitable lable of "Cleveden girl".[1] This attitude, the result of superimposing the experimental course upon a regular school of nursing, meant than on occasions the standards of nursing care and technique practised by the alternatives were adversely affected by the attempt to

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1. The alternative nurses came to be known frequently in the hospital as "Cleveden girls" since their hostel and training school were both situated in Cleveden Road, Glasgow.

keep pace with the more experienced 'regulars' at all costs.

This feeling of belonging to the ward team could not really be gained until the middle of the second year, during the fifth term, and the satisfaction that it gave was forcefully expressed. The continual change of hospital experience made necessary during the third and fourth terms was enjoyed by most of them, and considered stimulating; but as a result of the varied scenes many members of the group were aware of a feeling of "outsideness" as they expressed it themselves. At this time they could not stay long enough in any hospital or ward to gain a feeling of working their way into the team, and their lack of direct responsibility for patients and their supernumerary status were both accentuated. Just a few of them also found some difficulty in adjusting to the psychiatric nursing experience of the fourth term, although they appreciated the value it would be to them when they returned to the general wards. It was also interesting to note that these alternative students themselves considered that the short periods of experience they gained in hospitals outside Glasgow Royal Infirmary were adequate for basic nursing requirements in these specialities.

Another noticeable reflection of many of these students was that they should be given greater responsibility for their patients earlier in their course. It was difficult to see how this could be developed effectively until all the experience in the outside hospitals had been acquired. This particular

dissatisfaction, however, emerged strongly in students' comments before the fifth terms was reached, and is closely allied to their feeling of "outsideness". Many of them, as already noted, did achieve a considerable degree of responsibility for patient care during this fifth term, and certainly seemed happier and more contented by doing so. This particular point was raised again in discussion by the students in their sixth term, when they considered that in this one respect they had to some extent retrogressed. In this last term their minds were inevitably turning to the interne year ahead, and they needed reassurance that they were going to be able to take some responsibility for ward administration and to plan the total care of patients. This sentiment expressed by these alternative students may have been accentuated by working alongside the regular students as closely as they did, and by becoming familiar with the considerable authority being assumed by them. It was, however, strongly and persistently expressed by many of the alternative students from the second term onwards.

The alternative students also made some comments on their classroom experience in Cleveden Road. These opinions were given by half of the second group in their sixth term, and therefore reflected their thoughts on the whole theoretical aspect of the course. There was no doubt that they all felt the need for more time for personal study. Curiously enough they resented quite

strongly the number of case histories they had to prepare, and believed that only the ones compiled by themselves helped them at all. They thought that their endless repetition throughout the course was conducive to lack of interest and boredom with each other's efforts. They also would prefer, they said, to spend less time in working on "arranged" questions and the preparation of tests, so that they would have more freedom to select their own subject for study.

On a few occasions the students also commented on their attitude towards student status. It seemed to them that they had achieved a greater degree of "student nurse" status, but not necessarily real student status. By this they meant that, although their course had been carefully planned for them both educationally and practically, they had not had the social responsibilities and privileges normally enjoyed by college students. For instance, they would have appreciated greater freedom in the issuing of late passes, and the opportunity of spending consecutive off-duty nights more frequently in their own homes. As it was, they were only permitted to spend two consecutive nights away from hospital once each term, even if this meant, as it often did, cutting short a day off to return to the hostel after one night's absence. Again, as they pointed out, although they were encouraged to meet from time to time to discuss their own professional and social affairs they felt that very little, if anything, ever came of these meetings, and that their comments and suggestions bore little fruit.

It must be mentioned that these points were made without any grudge at all against their own course, which on the whole they had enjoyed. But this group of intelligent young women were seriously trying to understand to what extent their new so-called student status had actually broken fresh ground in terms of developing greater professional and social maturity.

About two thirds of the first and second alternative groups were interviewed at the end of their third year, and nearly all of them said that it had been a tough experience at the beginning. Quite a number of them believed that they could and should have been better equipped to face the sudden transition in status from student nurse to acting staff nurse. Many of them felt the need for some short introduction to the role of the staff nurse as far as the routine administrative duties were concerned. It was in this respect rather than in relation to carrying out nursing care and techniques that nearly all of them had suffered considerable anxiety earlier in this year. It was also suggested by others that a short spell of night duty, as the senior nurse, right at the beginning of the interne year would have helped to develop confidence quickly and effectively.

On the other hand, none of these nurses doubted the great value of this third year. They were astonished at how much they had learnt about every aspect of nursing care and ward routine, and as one of them said everything had 'clicked', as the year proceeded. They all believed also that it was an essential part of their

course; and it seemed that by the end of it almost without exception they felt ready and able to act as sister's deputy.

Another interesting point they made was that the freedom from examinations had increased their ability to understand the requirements of total nursing care for the first time. It was also in this interne year that most of them had been able to resume a fuller social life, and to develop new interests outside their work, which as students they had found impossible.

The Opinion of Ward Sisters

During the course of many visits to Glasgow Royal Infirmary over the years it was possible to know most of the ward sisters quite well, and the writer was in a position to have periodic discussions with them on the practical abilities of both the alternative and regular students. The sisters in Glasgow Royal Infirmary, as well as in the other hospitals visited, had a consistently high regard for the enthusiasm, willingness and adaptability of the alternative nurses. There were individual exceptions, as is inevitable in all such groups of students, but it was felt that nearly all of them sought to take a full and fair shareof all types of nursing duties. The ward sisters were also very consistent in their appreciation of the theoretical competence of

the alternative students, although equally agreeing that on the whole their practical work tended to be slower and unrelated to any emergencies which might develop. One sister, in fact, epitomised the contrast between the two groups when she mentioned that on various occasions she had asked students of the alternative and regular groups to administer the same medicine; the regular student knew exactly where the medicine was kept and where to find the instructions for the correct dosage right away, and would probably have the medicine administered much more quickly than the alternative student, who was at this time less familiar with the exact bottle required and its position in the medicine cupboard. On the other hand, she went on to say that there was no doubt about which student would know most about the possible toxic effects of such a drug upon the patient.

When talking to matrons and ward sisters in the outside hospitals about the practical experience of the alternative students there was equal certainty expressed about their integrity and group enthusiasm, and as previously indicated the shorter-staffed hospitals were more than delighted with their additional contribution to patient care. There was also the feeling generally amongst these specialists that the short period of time spent by the students was inadequate to provide a sound grounding in the specialty in question. This was an opinion, however, which the alternative students themselves did not share.

The planned interviews which took place with the Glasgow Royal Infirmary ward sisters during the interne year were undertaken on the three occasions each year, when the official observation sessions were being carried out in Glasgow Royal Infirmary. All ward sisters having an alternative nurse in their team were asked to rate them in terms of the standard of performance of an average fourth year staff nurse in this hospital. This requirement may seem to lack some appreciation of the very new and special role of the alternative nurse, particularly at the beginning of her interne year, but again it was felt that some known standard of performance must be sought in order to establish an objective measurement of progress during the year. The sisters were asked to comment on the performance of these nurses under the same headings as were being used by the internal and external observers; and the results of these three opinion studies which were carried out in December, 1958 and March and August, 1959 and at similar times in the second year have been summarised here as far as possible.

Although nearly all the ward sisters were interviewed on each occasion it was difficult to synthesise their comments for the simple reason that only some of the alternative nurses were acting as staff nurses at any time, and their seniority on the wards varied considerably throughout the interne year. For this reason

too it was impossible to analyse the progress made by individual alternative nurses during this period. Tables 53 and 57 have already shown the different positions held by each of these fifty alternative nurses during the first and second interne years.[1]

On all occasions when these discussions were held with the ward sisters slightly more than half the alternative group were acting as staff nurses, and could be reasonably assessed by the ward sisters. At the beginning of the year it was clear that only about twenty-five per cent. of them measured up to the average staff nurse performance to which the sisters were accustomed, but by the end of the first interne year, at least half of the group were able to do so and approximately 70 per cent. at the end of the second year. As far as the individual performance of the alternatives was concerned, three or four of them were regarded as disappointing on all occasions, whilst the rest of them had a variable rating at different stages in the year.

It was, of course, impossible for the ward sisters to give any such clear-cut impression of the capabilities of the other alternative nurses, who had not been placed as their deputy or

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1. For Tables 53 and 57 see Chapter XII pp.224 + pp.234

acting staff nurse. They could, however, discuss certain aspects of their work, such as method and technique and care of patients, both of which were largely unrelated to administrative duties. The attitude of the ward sisters to these particular enquiries were much more encouraging, and during each series of interviews at least 80 per cent. of these nurses were regarded as equally proficient in carrying out nursing procedures and satisfactory patient relationships as the regular staff nurses. Only a small and constant minority failed to achieve this standard.

The comments made by the ward sisters on the performance of the second group of alternative nurses in the acting staff nurse role were similar in many respects to their remarks on the first group. The only difference of interest was to note once again, as in the results of the observation sessions, that their performance in their second year was rather better especially in the last six months.

The impression gained from the ward sisters of the performance of these alternative nurses during both interne years may perhaps be best summed up by saying that whenever they had to assume the role of acting staff nurse the ward sisters became rather tentative about their potentialities, although greater assurance of their work in this role was expressed as each year progressed.

On the other hand, whenever the alternative nurses had not been sister's deputy and, therefore, not an acting staff nurse, a much greater feeling of assurance regarding their ability at this lower level was given. In fact, the ward sisters' estimation of the alternative nurses resembled closely that of the external and internal observers who had carried out the official evaluation of the first and second interne years.

SECTION VI

CHAPTER XV

## A Comparative Analysis of the Characteristics & Performance of the Alternative & Average Student Nurses in Scotland

It has already been noted in Chapter V that the second aspect of this evaluation programme would be concerned with an attempt to make some general comparisons between the background and performance of the alternative and average student nurses in Scotland, since it is important to consider how far the experimental type of course could be developed nationally rather than on a local basis. This aspect of evaluation is also neccessary in view of the considerable educational and intellectual atypicality of the alternative students, and to a lesser extent of the control students, already known to exist.

In order to achieve up-to-date information on the average Scottish students a follow-up study was established in September, 1957 which provided for the collection of data relating to the characteristics of student nurses entering all the general, sick children's and infectious diseases hospitals in Scotland during one year. All student nurses entering the Preliminary Training Schools of these fifty-two hospitals were asked to answer fairly detailed questionnaires on their personal, social and educational history, and also to complete the Otis Intermediate Test for Secondary Schools so that an assessment of their intelligence could be obtained.

During the course of the year 1st September, 1957 to 31st August, 1958 almost two thousand students entered these

various hospitals; and 98.5 per cent. of them voluntarily completed these various schedules.[1] For the other 1.5 per cent. of non-co-operating students it was possible to fill in certain gaps in their background, such as school leaving age and educational qualifications, from the matrons of the hospitals concerned. The data presented in this section on the average student nurse, therefore, are representative of the present-day Scottish students except for a small number taking training in psychiatric or other specialised branches of nursing.

The main purpose of this cohort study has been to analyse the numbers and types of students succeeding in the Preliminary State Examination taken after the completion of one year in hospital, and the Final State Examination taken at the end of three years in the general and sick children's hospitals and after two years in the infectious diseases hospitals. In order to follow the progress of the students information has been available from two sources. Firstly, the matrons of all these hospitals have assisted by notifying the departure of any student between the date of commencement and the time of taking the Final State Examination, and secondly co-operation has again been given by the General Nursing Council for Scotland in respect of examination results. The Council generously agreed to make available the same gradings on the performance of the students in both the Preliminary State Examination and Final State Examination as they had done for the

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1. For the questionnaire used in this study see Appendix III.

alternative and Glasgow Royal Infirmary and Edinburgh Royal Infirmary control students discussed earlier in this study. It was not feasible in this instance to get all these papers re-marked as had been arranged before, but it was considered that the large number of students involved would tend to offset examiner discrepancies should they exist.[1]

This part of the evaluation is not yet completed, and like the experimental course itself will not be so for some time to come. The last students entering both the general and sick children's hospitals in August, 1958 will not take their Final State Examination until the autumn of 1961, and if they have any deferment of examination dates it may be towards the end of 1962 before all the results of these entrants are known. At this time, therefore, it is possible to consider the performance of all the average students in this study up to and including the Preliminary State Examination. Some of them will have discontinued their training before participating in this examination, whilst the achievemnet by grading of all the others taking it has now been made available by the General Nursing Council for Scotland.

The earlier section of this evaluation has shown that there are likely to be certain essential points of comparison to be made between the alternative and average students which will help to elucidate further the value of the experimental method of training. These points of comparison will form the basis of discussion in this

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1. The General Nursing Council has a large team of surgeon, physician and nurse examiners who each correct some 25 - 50 papers on their own subject, so that the marks awarded to these 1912 students would be allocated by a number of different experts.

chapter. Firstly, it has become apparent that there was a considerable difference in the average educational and intellectual ability of the alternative and control students. This was to some extent inevitable, as the official policy of the Steering Committee was to seek students with 'above average education' on account of the more academic content of the course. In addition, as previously indicated, the alternative students were principally self-selected, and it has been shown that such a course tends to attract girls of higher intellectual calibre.

If, however, this type of training is to be extended on a wider regional or national basis it is necessary to consider in terms of the average intake of student nurses approximately how many of them would be eligible on educational and intellectual grounds for such a course. It is always possible that such a new method of training would attract more of the better-educated high school girls, who do not now come into nursing. There is however a definite limit to the number of such school-leavers each year, while at the same time the range of careers open to them has steadily increased. Analysis of a cross-section of the average intake of student nurses will, therefore, provide a realistic measure of the numbers who would be likely to be suitable for an experimental type of course.

In table No.62 the educational and intellectual characteristics of the two groups of students - the alternative and average - can be compared.

Table 62 The Educational & Intellectual Characteristics of the Alternative & Average Student Nurses in Scotland

| | | Average Students | Alternative Students |
|---|---|---|---|
| | | % | % |
| School Leaving Age | 18 and over | 7.0 | 44.0 |
| | 17.0 - 17.11 | 15.5 | 45.3 |
| | 16.0 - 16.11 | 14.7 | 9.3 |
| | under 16 | 62.8 | 1.4 |
| | total | 100.0 | 100.0 |
| Educational Qualification | S.L.C. with university entrance | 1.8 | 22.7 |
| | S.L.C. | 18.7 | 73.3 |
| | No S.L.C. | 79.5 | 4.0 |
| | total | 100.0 | 100.0 |
| Otis Intermediate I.Q. * | 110 - 116 | 24.8 | 66.7 |
| | 100 - 109 | 43.5 | 33.3 |
| | up to 99 | 31.7 | - |
| | total | 100.0 | 100.0 |

* The Otis Intermediate Test for Secondary Schools is not considered a satisfactory test for the average student nurse and even less so for the alternatives, as it is intended to be given to school children in the 11 to 14 age group. In the process of establishing the Scottish Study on the Characteristics of Successful and Unsuccessful Student Nurses, outlined at the beginning of this chapter, it was discovered that this particular test was being used by exactly half the student nurse training schools concerned. Because of the impossibility of getting all 26 of these hospitals to use another test it was decided to get it carried out by the students in the other 26 hospitals in this Study. To form some basis for comparison the alternative students were also asked to carry out this Otis Test, in addition to the N.I.I.P. Group Test 33 completed at their interview. The Otis Test is not, however, likely to give sufficient discrimination at the higher score levels.

The contrasts revealed by this table are certainly striking and all the differences are statistically significant. There is a similarity within each group in the first two sections of this table which is hardly surprising, as it would be almost impossible for any of the 62.8 per cent. of the average students leaving school before the age of sixteen to have acquired a school leaving certificate; and equally it is most probable that many of the early school leavers will have the less good intelligence scores.

It has been possible to consider the differences in the educational standards of the two groups in more detail, as is illustrated in the table No.63. The control students of Glasgow Royal Infirmary and Edinburgh Royal Infirmary have also been included in this table.

Table 63 Standard of School Leaving Certificate achieved by Alternative, Average & Control Student Nurses in Scotland.

| Educational Standard | Alternative Students | | Average Students | | Control Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| more than 2 highers in School leaving certificate | 26 | | 56 | | 36 | |
| 1 or 2 highers in School leaving certificate | 37 | 84.0 | 157 | 10.9 | 74 | 30.9 |
| more than 2 lowers in School leaving certificate | 6 | | 133 | | 49 | |
| 1 or 2 lowers in School leaving certificate | 3 | 12.0 | 45 | 9.3 | 14 | 17.7 |
| No School leaving certificate | 3 | 4.0 | 1552 | 79.8 | 182 | 51.4 |
| Total | 75 | 100.0 | 1943 | 100.0 | 355 | 100.0 |

It is apparent that 84 per cent of the Alternative students fall in the top 10 to 11 per cent. of the average student population and 96 per cent. of them in the top 20 per cent. This comparison illustrates even more plainly the educational atypicality of the alternative group, and on this basis it would be reasonable to anticipate the entry of about four hundred students into the profession in Scotland annually who matched the alternative group educationally. The other point of interest which emerges is the position of the control group vis-a-vis the other two groups, indicating that the educational entry standard of students into the two leading teaching hospitals in Scotland is also well above the average level of all training schools in the country.

It was also possible to observe in the analysis of all the other data available from the questionnaires completed by the average student nurses that these same characteristics - educational standard, intelligence and school leaving age - had a greater effect on the success of students within this group than any of the others which were analysed. This same trend, which had also been noted earlier in the Birmingham and Oxford wastage studies, has already been referred to in Chapter II, and is illustrated in relation to the Scottish average students in tables No's 64 and 65.

Table 64 The Personal Characteristics of Successful & Unsuccessful Average Student Nurses in terms of the Preliminary State Examination

| | | Average Scottish Students | |
|---|---|---|---|
| | | Percentage Successful in P.S.E.* % | Percentage Unsuccessful in P.S.E.* % |
| Father's Occupation | Professional | 12.0 | 6.1 |
| | Other non-manual & Self-Employed | 35.2 | 28.2 |
| | Manual | 47.9 | 51.4 |
| | Unknown | 4.9 | 14.3 |
| | Total | 100.0 | 100.0 |
| Family Size | 1 and 2 | 58.3 | 50.6 |
| | 3, 4 and 5 | 30.0 | 31.7 |
| | 6 and over | 11.7 | 7.8 |
| | Unknown | - | 9.9 |

Table 65 The Educational & Intellectual Characteristics of successful & unsuccessful average Student Nurses in terms of the Preliminary State Examination

| | | Average Scottish Students | |
|---|---|---|---|
| | | Percentage Successful in P.S.E. * | Percentage Unsuccessful in P.S.E. |
| | | % | % |
| School Leaving Age | under 15½ | 49.5 | 65.3 |
| | 15.6 - 17.0 | 25.0 | 22.8 |
| | 17.1 & over | 25.5 | 11.9 |
| | Total | 100.0 | 100.0 |
| Educational Standard | No. S.L.C. | 74.7 | 91.6 |
| | S.L.C. only | 23.5 | 7.8 |
| | S.L.C. with Attestation of fitness ** | 1.8 | 0.6 |
| | Total | 100.0 | 100.0 |
| Score in Otis intermediate Intelligence Test | < 100 | 26.3 | 49.7 |
| | 100- 109 | 47.4 | 37.5 |
| | 110- 116 | 26.3 | 12.8 |
| | Total | 100.0 | 100.0 |

* P.S.E. Preliminary State Examination ( of the General Nursing Council)

** A School leaving certificate with at least two academic subjects at higher level may be considered by the Scottish Universities Entrance Board as worthy of an Attestation of Fitness Certificate admitting the student to a University course.

It will be seen that in Table 64 the students whose fathers are in professional occupations or who have not themselves previously been employed have been considerably more successful than other students who have not had these background characteristics; but it is likely that these are the very students who were able to stay at school longer to complete their education. Table 65 illustrates again the greater success rate of the more highly educated and intelligent students in each of the classifications made. All the figures quoted in these tables were statistically significant at the $P =< .05$ level.

The second useful comparison which can be drawn between the alternative and average student nurses relates to examination performance. The earlier part of this evaluation study has indicated clearly that education and intelligence are of importance in this respect. It was illustrated in the discussion on both the results of the General Nursing Council Final State Examination and the multiple choice tests that the better performance of the alternative students was dependent mainly on greater academic ability; and in the ward practical tests there was no evidence to illustrate that it was in any way disadvantageous to be highly intelligent. These chapters also illustrated that within each alternative and control group performance was directly related to these same factors, and that there was an intelligence level below which achievement deteriorated notably.

It is not possible to compare the examination results of the alternative and average students exactly since the Final State Examination results are not yet available for the latter; but as already indicated, their performance in the Preliminary State

Examination can be reviewed in terms of the same grading used to classify the Final State Examination results of the alternative students. From this analysis the relationship, if any, between the educational and intellectual ability of the average students and their examination performance will be illustrated.

In tables No's 66, 67 and 68 a combined rating of the educational and intellectual abilities of the average students has been established. It was already evident from the initial tabulations that education and intelligence played a greater part in determining the success of the average students than any of the other characteristics supplied in the original questionnaires. This trend was apparent not only in the actual examination performance itself, but also in relation to the numbers who discontinued their training before taking this first General Nursing Council examination. A three grade classification was arranged, so that approximately one third of all the students fell in each category.

Category 1. included all students who had a school leaving certificate regardless of intelligence score, and students without a certificate who had an intelligence score of 110 upwards (645 students)

Category 2. included all students with an intelligence score of 100 - 110 (but who had no school leaving certificate) (677 students)

Category 3. included all students who had an intelligence score below 100 (and had no school leaving certificate) (590 students)[1]

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1. Of the 1,979 students in the survey thirty-six were men who were not included in these tables on account of their different background and characteristics and the intelligence score of the remaining thirty-one students was unknown. These categories, therefore, represent 1,912 students or 96.3 per cent. of the student population.

Tables No's 66, 67 and 68 indicate the relationship between the average students' academic category and performance in the three parts of the Preliminary State Examination. This examination consists of two written papers in Part I, Anatomy & Physiology and Health & Nutrition. Part II consists of a written and practical examination in elementary nursing practice and technique, which is similar in form to the nursing part of the Final State Examination.

One of two further explanatory comments are required in connection with these tables. They relate, as already indicated, only to average students who succeeded in passing the Preliminary State Examination, so that the total number of students in these tables has been reduced by approximately 27 per cent. who did not reach this landmark in the course. In constructing these tables the pass grade only for each student has been recorded, either A, B or C, although some of the students had only achieved a pass grade after one or more attempts at the examination.

Table 66 The Performance of Average Student Nurses in the Anatomy & Physiology paper of the Preliminary State Examination.

| Grade achieved in Preliminary State Examination | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Grade A | 268 | 48.0 | 178 | 35.5 | 70 | 20.9 |
| Grade B | 162 | 29.1 | 143 | 28.5 | 95 | 28.2 |
| Grade C | 128 | 22.9 | 181 | 36.0 | 171 | 50.9 |
| Total | 558 | 100.0 | 502 | 100.0 | 336 | 100.0 |

Table 67 The Performance of the Average Student Nurses in the Health & Nutrition paper of the Preliminary State Examination.

| Grade achieved in Preliminary State Examination | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Grade A | 184 | 33.0 | 98 | 19.5 | 28 | 8.3 |
| Grade B | 197 | 35.3 | 174 | 34.7 | 96 | 28.7 |
| Grade C | 177 | 31.7 | 230 | 45.8 | 212 | 63.0 |
| Total | 558 | 100.0 | 502 | 100.0 | 336 | 100.0 |

Table 68 The Performance of the Average Student Nurses in the Nursing Written & Practical Tests of the Prelim-State Examination

| Grade achieved in Preliminary State Examination | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Grade A | 195 | 35.0 | 108 | 21.5 | 53 | 15.8 |
| Grade B | 297 | 53.2 | 292 | 58.2 | 196 | 58.3 |
| Grade C | 66 | 11.8 | 102 | 20.3 | 87 | 25.9 |
| Total | 558 | 100.0 | 502 | 100.0 | 336 | 100.0 |

In both tables 66 and 67 it is apparent that the best performance is achieved by the category one students in the written papers of this examination, in so far as a greater number were placed in grade A than the other two categories and similarly fewer of them were in C grade. These differences reached a level of statistical significance on both occasions. ($P < .001$). In table No. 68 the result was not very different, In this case over 50 per cent. of students in all categories were in B grade, but again a higher percentage of category 1 students achieved grade A than grade C, whereas in the case of category 3 students this particular finding was reversed. Again, as in tables 66 and 67 the results indicated in table No. 68 reached the same level of significance in the chi-square test.

The next 2 tables No's 69 and 70, illustrate another aspect of this same trend by showing the different percentage of students in each of these 3 categories who passed Part I and Part II of the Preliminary State Examination at the first attempt.

Table 69. The time taken by the Average Students to pass Part I of the Preliminary State Examination

| No. of Attempts at Part I Preliminary State Examination | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| passed exam.at first attempt | 524 | 93.9 | 444 | 88.4 | 267 | 79.5 |
| passed exam. at second, third or fourth attempt | 34 | 6.1 | 58 | 11.6 | 69 | 20.5 |
| Total | 558 | 100.0 | 502 | 100.0 | 336 | 100.0 |

Table 70. The time taken by the Average Students to pass Part II of the Preliminary State Examination

| No. of Attempts at Part II Preliminary State Examination | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| passed exam at first attempt | 542 | 97.1 | 451 | 89.8 | 292 | 86.9 |
| passed exam. at second, third or fourth attempt | 16 | 2.9 | 51 | 10.2 | 44 | 13.1 |
| Total | 558 | 100.0 | 502 | 100.0 | 336 | 100.0 |

Both these tables are again significant at the $P < .001$ level in the chi-square test; and they indicate that the category 3 students in both parts of the examination had a much higher failure rate at the first attempt than the Category 1 students. This finding accentuates the differences between the three categories of these average students already noted in Tables No's 66 and 68 above.

The main point of interest arising from tables No's 66 to 70 is that for the average student nurses in Scotland educational and intellectual ability is at least as important a factor in standard of performance in the Preliminary State Examination as it was shown to be for both the alternative and control students in the Final State Examination.

As indicated earlier, a considerable number of average students were not successful in passing this Preliminary State Examination. Some left before taking it and others failed in the attempt. An analysis of these unsuccessful students in fact introduces the third comparison of the alternative and average Scottish groups which can be attempted, namely the causes and distribution of student wastage.

The discussion in Chapter XI has already illustrated that the marked reduction in wastage recorded for the alternative group was due to two main factors. Firstly, loss due to educational disability was eradicated; and secondly, the loss of students due to dislike of nursing was effectively decreased compared with the control group.

In the next part of this discussion an attempt will be made to analyse the wastage of the average Scottish students by these same criteria. It has been possible to study the wastage data at two levels. One analysis has been carried out on all the survey students who did not succeed in passing the Preliminary State Examination based on the three educational and intellectual categories used in the previous section. The overall rate of loss was 13.3 per cent., 25.7 per cent. and 43.0 per cent in categories 1, 2 and 3 respectively, which immediately suggests once again the

disadvantageous position of students in the least competent group. In table No. 71, the causes of wastage in each of these three categories have been enumerated.

Table 71 The Principal Causes of Wastage amongst Average Student Nurses in Scotland up to the time of taking the Preliminary State Examination

| Causes of Wastage | Category 1 Students | | Category 2 Students | | Category 3 Students | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Educational unsuitability during or after the P. T. S. | 10 | 11.5 | 56 | 32.0 | 177 | 66.9 |
| Did not like nursing or hospital discipline | 32 | 38.0 | 33 | 18.8 | 21 | 8.2 |
| Left on account of ill health | 13 | 14.9 | 26 | 14.8 | 9 | 3.5 |
| Left for other reasons | 32 | 35.6 | 60 | 34.4 | 47 | 21.4 |
| Total | 87 | 100.0 | 175 | 100.0 | 254 | 100.0 |

A study of table 71 leaves no doubt at all as to the principal cause of wastage in both categories 2 and 3, although the percentage of students leaving on account of intellectual disability in group 3 is much higher than in group 2. It is also apparent that so many of the category 2 and 3 students were lost on account of educational unsuitability that the number of them recorded as leaving for other reasons was inevitably reduced compared with category 1. The other feature of particular interest is that a much higher percentage of group 1 students were lost to the profession because they did not like nursing as such. The findings of this table are again notably similar to those already illustrated in the alternative and control comparison in so far as educational loss is again the most serious factor, and the second most important cause is attributable to some dissatisfaction with the regular course itself.

In order to compare the causes and distribution of wastage more exactly with the estimates given in Chapter XI for the alternative and control students, it is necessary to consider loss among the average students over the full three years. To do this only the first intake of average students in each hospital (i.e., those commencing between 1st September and 31st December, 1957) who have now completed the whole three years of their course could be included. There are 784 students, or 39 per cent. of the survey population in this group./

group. The causes of wastage amongst these students are presented in table No. 72, which also illustrates the periods of greatest loss. Although the official cause of wastage was supplied by the matrons, students discontinuing training have been invited to answer a questionaire after leaving their training school, and all the students included in line 1 of this table have agreed that their failure was due to theoretical incompetence.

Table 72 The Causes of Wastage amongst Students in General, Sick Children's & Infectious Diseases Hospitals in Scotland commencing their course between 1. 9.57. and 31.12.57. up to time of taking the Final State Examination.

| Cause of Wastage | Duration of Training | | | | |
|---|---|---|---|---|---|
| | 1 - 6 months | 7 - 12 months | 2nd year | 3rd * year | over whole course |
| | % | % | % | % | % |
| Educationally unsuitable | 42.4 | 40.0 | 40.9 | 17.4 | 39.3 |
| Dislike of discipline | 6.8 | 20.7 | 9.0 | 4.3 | 10.0 |
| Sickness | 10.2 | 3.7 | 6.6 | 8.7 | 7.8 |
| Family & domestic reasons | 15.2 | 7.5 | 18.0 | 8.8 | 13.9 |
| Other reasons | 8.4 | 3.6 | 9.0 | 4.3 | 7.6 |
| Marriage | 10.2 | 17.0 | 16.5 | 56.5 | 16.6 |
| Total per cent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

* Third year figures relate to general and sick children's hospitals only.

The/

The situation presented in this table is not dissimilar to that illustrated by table No.71, as again intellectual unsuitability is the most serious factor, except for the high rate of marriage evident in the third year. If, however, the educational, disciplinary and health factors are added together they are, as with the control students, found to be responsible for about half of this student nurse wastage - 49.3 per cent. - indicating that there is a close relationship between the causes of wastage amongst the average and control students, but some considerable difference between both these groups and the alternative students.

This assumption is clarified in table No.73, which illustrates the numbers of students in all three groups - alternative, average and control - whose loss is attributable to what may be termed the 'avoidable' and the 'unavoidable' factors of wastage such as marriage, domestic and family problems and personal reasons.

Table 73/

Table 73 The Causes of Wastage amongst Alternative, Average and Control Student Nurses before taking the Final State Examination corrected for size of group.

| Cause of Wastage | Number of Students leaving in 3 years per 1,000 students entering. | | |
|---|---|---|---|
| | Alternative Students | Average Students | Control Students |
| Educational unsuitability | NIL | 133 | 34 |
| Dislike of nursing | 13 | 50 | 50 |
| Ill-health | 27 | 26 | 31 |
| Family & domestic | NIL | 47 | 17 |
| Marriage | NIL | 59 | 11 |
| Personal | NIL | 12 | 14 |
| Other reasons | NIL | 13 | 8 |
| Total No. leaving | 40 | 340 | 165 |
| Total No. in group | 1000 | 1000 | 1000 |

From this table it is apparent that the educational discrepancy already noted between the alternative and control nurses

nurses is further accentuated in the case of the average students. The other notable feature is also that the average student wastage for dislike of nursing is comparable to that of the controls, but much higher than in the alternative group. Wastage due to ill health, estimated on this basis, is the same for the alternative and average groups and slightly more for the controls; whilst all the other causes of wastage which might be regarded as 'unavoidable' have not affected the alternative students at all, and the other two groups equally.

From the analyses carried out in this chapter it would appear firstly that there is for all students in this study a close relationship between their educational and intellectual ability and their standard of performance in theoretical tests and examinations. Secondly, it appears that the poorly educated students with a low intelligence score waste at a high rate principally on account of educational unsuitability, and this problem is particularly severe among the average groups and non-existent amongst the alternative groups. Thirdly, the wide variation in the academic ability of the alternative and average groups has been illustrated. In view of these findings, considerable doubt must be raised as to the suitability of the new course for all the average students.

In the next table, No. 74, a direct comparison of the abilities of the three types of students has been attempted by placing them in the three categories already used for the classification of the average students.

Table 74 The Percentage of Alternative, Average & Control Students falling into Educational Intellectual Categories 1, 2 and 3

| | Alternative Students | Average Students | Control* Students |
|---|---|---|---|
| | % | % | % |
| Category 1 | 100.0 | 33.7 | 74.7 |
| Category 2 | - | 35.4 | 19.6 |
| Category 3 | - | 30.9 | 5.7 |
| Total | 100.0 | 100.0 | 100.0 |

* Only the control students commencing in Glasgow Royal Infirmary in August and September, 1955 and 1957 and in Edinburgh Royal Infirmary in August and September, 1957 are included in this table, since the others did not complete the Otis Intermediate Test for Secondary Schools one of the criteria on which these categories were established.

Although it is impossible to predict exactly how many of the average student nurses could undertake the new course successfully, particularly remembering the very different facilities available in the experimental and traditional methods of training, on the basis of evidence provided in this chapter some forecast may be attempted.

Firstly, dealing with the category one students only, it will be recalled that all this group of average students either possessed some type of school leaving certificate or had a high score in the Otis Intermediate test. It is, therefore, considered likely that all these 645 average students could successfully undertake the experimental type of course, where these attributes have been shown to be so important. This prediction is also strengthened by the fact that the more highly qualified alternative students had passed the Final State Examinations with some margin of marks to spare, so that a rather less atypical group could also be expected to succeed.

Of the category two students it is almost impossible to make any reasonable comparison, since none of the alternative students were in this category: and it is difficult to assess how the better facilities but greater academic intensity of the new course would impinge on this group of students. Some of the more intelligent ones might well succeed, but the others would probably find the intellectual pace too great.

Turning to the category three students it is highly doubtful whether the 590 students, all of whom had an intelligence quotient of

less than 100 in the Otis test, would be able to reach the required academic standard in this shorter period of time. From the evidence available in the first part of this evaluation study, it was apparent that the performance of the control students with a score of below 100 in the N.I.I.P. Group Test 33 deteriorated sharply almost invariably in all the written examinations. Admittedly, most of them passed the Final State Examination, but it is highly doubtful whether they could succeed in a more concentrated and academic type of course; and as far as the average students themselves are concerned, it has been illustrated that the category three students not only pass the Preliminary State Examination at a lower standard but take a significantly longer time to do so.

It is impossible to be more precise with the data available, but it is suggested that perhaps at least a third of the 1912 average students included in this particular analysis would find the experimental type of course too difficult for them theoretic-:ally; and if they were all encouraged to participate it can only be assumed that the present rate of wastage amongst the category three students, which is already as high as 43.0 per cent. up to the completion of the Preliminary State Examination, would be considerably increased.

## Section VII

### CHAPTER XVI.

### A discussion of the Findings and Implications of this Study

Consideration will be given in the first section of this chapter to how far the immediate objectives of this experimental course have been achieved. The second part of the discussion will be concerned with the wider implications of the new course, namely to what extent it could be developed on a regional or national basis and its contribution to a fuller understanding of the shortcomings of basic nursing education outlined in the introductory section of this study.

#### The Achievement of the Experimental Objectives

It will be recalled that the objectives of the experimental course had been sub-divided into the following categories for the purposes of evaluation:

The principal objectives of the new course were considered to be:

1. To prepare the student nurse for the Final State Examination of the General Nursing Council in two instead of three years.
2. To enable these students to act as staff nurses in their third year.

The associated objectives were considered to be:

1. To provide a greater number of trained nurses within the hospital service.
2. To decrease wastage rates amongst student nurses.
3. To attract greater numbers of students into the profession.
4. To develop student status.

The additional objectives were considered to be:

1. To produce a more fully educated and mature nurse with scope for greater personality development.
2. To improve the standard of patient care.

From the evidence presented in this study there can be little doubt as to the satisfactory achievement of two of these objectives. Firstly, that given control of the student nurse's time, a well-educated and intelligent student can successfully complete this experimental course in two years instead of three. Forty-nine out of fifty alternative students passed the Final State Examination of the General Nursing Council for Scotland at the first attempt, and the other student who had to re-sit the nursing practical examination was successful at the second attempt.[1]

At the same time, however, the special circumstances of

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1. Chapter VIII, p. 133

this experiment, which made this achievement possible, must be recognised. It has been noted earlier in this study that the alternative students had a considerably higher range of educational and intellectual ability than the control students, so that it still remains uncertain how many of the control or average student nurses in Scotland could undertake this different type of course successfully. It was also observed that, with the exception of practical nursing in the October 1959 Final State Examination, the alternative students had only a small percentage of their group in grade C (i.e. with the lowest pass marks of 50 - 59 per cent.)[1] These results would indicate that the alternative students had passed the examination by a wide margin of marks, so that presumably a less atypical student group would also be likely to succeed.

It has also been shown that the performance of both the alternative and control students in the Final State Examination and multiple choice tests was more closely associated with the educational and intellectual calibre of the students within each group than to the different types of courses they undertook. Admittedly the alternative students of comparable ability performed a little better in the Final State Examination than the controls, but on the same analysis of the multiple choice tests this trend was reversed, giving the controls a small, but not significant, advantage.[2]

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1. Chapter VIII, Tables 17 and 18, pp. 135 + 136

2. Chapter VIII, Tables 25-29, pp. 151, 152 + 155 + 156
   Chapter IX, Tables 33-37, pp. 167 - 169 + 171

In the case of the specially-designed ward practical tests the findings were different, since neither educational nor intellectual ability appeared to play any part in the standard of performance of either group of students, so that the comparable overall performance of the alternative students in a shorter period of time may have been attributable to their closer supervision and more adequate clinical instruction on the wards.[1] This last method of examination was not, however, part of the Final State Examination by which this principal objective of the experiment was being measured.

Whilst, therefore, it is accurate to assert that this major objective of the experimental course, to enable students to pass the Final State Examination in two instead of three years, had been accomplished, it has also to be recognised that this achievement was more closely associated with the higher calibre of the alternative students than the differences between the two courses; and although it appears likely after the experimental course that a less atypical group of students could also pass the Final State Examination, no opportunity has so far been afforded of seeing where the cut-off point in terms of ability would be found.

The second outstanding accomplishment of this experiment has been the reduction in wastage of students during training.

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1. Chapter X, Tables 40-44, pp. 184-186 & 188

This achievement has been attributed to two factors directly related to innovations in the experimental type of course. Not one alternative nurse has discontinued her course on account of educational unsuitability, whereas this factor accounted for the wastage of 3 - 4 per cent. of the control students and more than 13 per cent. of the average students in Scotland.[1] This experimental success has been directly related to the high educational and intellectual calibre of the alternative students compared with the other two groups, both control and average.[2] The other aspect of wastage which was notably reduced among the alternative students came under the heading of 'dislike of nursing'. This was a broad wastage category covering such causes as dislike of hospital discipline, dislike of hospital conditions and dislike of nursing as a job. Nevertheless, the attrition rate of students for this reason was shown to be nearly four times greater amongst the control and average students than the alternative student nurses.[3]

This improvement in the wastage figures could be regarded as a reflection of the many better conditions and facilities available to the alternative students, such as shorter hours of work, much less night duty, a better planned and integrated curriculum, more varied syllabus and less responsibility for patient care.

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1. Chapter XV, Table 73, p.281
2. Chapter XI, Table 48, p.201 and Chapter XV, Table 63, p.266 and Table 62, p.264
3. Chapter XV, Table 73, p.281

It was notable that among the average students in Scotland, up to the time of taking the Preliminary State Examination, a higher percentage of the most intelligent group of students had left for this reason of 'dislike of nursing' than in categories two or three of this group.[1]

The other causes of wastage listed in Table 73 of Chapter XV have been termed the 'unavoidable' factors of wastage and include attrition due to marriage, family, domestic, personal and other reasons. They were so designated because it is probable that such causes will be less amenable to changes in the conditions of nursing education and may always be expected to persist in courses where recruitment is almost entirely dependent upon young women of 18 to 25 years of age. Although none of the alternative students wasted for such reasons, 5 per cent. of the control and 13 per cent. of the average students did so.[2] It would be rather unwise, however, to predict that an experimental type of course would be likely to eliminate this particular form of wastage. The outstanding success of the experimental course in this respect must be attributed both to good fortune and also to an 'esprit de corps' which almost certainly kept this type of wastage amongst the alternative students down to a minimum.

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1. Chapter XV, Table 71, p. 277
2. Chapter XV, Table 73, p. 281

The other objectives of the new course did not meet with the same high level of success as the two already discussed. The most important of these other objectives was that the alternative nurses should assume the role of acting staff nurses in their third, interne year. As indicated in detail in Chapter XII of this study, the analyses of the several observation sessions carried out on their progress during this year were rather disappointing. Neither the first nor the second alternative interne groups equalled the standard of the regular control staff nurses, despite the fact that the latter groups became more junior as the year progressed and therefore more similar to the alternatives in their length of nursing experience. Although the second interne group managed to come nearer to the regular staff nurse standard by the end of the third year they did not manage to close the gap between themselves and the controls.[1]

This finding was all the more surprising in view of the fact that the alternative nurses had performed so well in their qualifying tests and examinations. They had shown, for example, in their ward practical tests, that with much less practical experience in the wards they could equal the standard of the control students, but during the observation sessions in the interne year their marks for 'method and technique' and 'care of patients' were never equal to the control staff nurses.[2] The explanation of this situation

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1. Chapter XII, Tables 50-52, pp. 213-215 & Tables 54-56, pp. 227-229

2. Chapter XII, Tables 50-52, pp. 213-215 & Tables 54-56, pp. 227-229

appeared to be due to the sudden transition in the role of these alternative nurses from the protected student status to "junior-senior" or acting staff nurse position. These difficulties became apparent from the comments as well as the marks awarded by the observers.[1]

It was also noted, particularly with the first interne group, that there was no planning for the gradual assumption of responsibility by these alternative nurses. Their status and position in the ward team was a variable factor throughout the year, as was the amount of experience in general and specialised departments acquired by them. Some attempt was certainly made to correct this situation for the second interne group, and this probably accounted for their slightly better performance.[2]

This trend could be interpreted as indicating that the new course had produced a different type of nurse, whose weaknesses and abilities varied considerably from those of the regular trained staff nurse. It could also be argued that the alternative nurse could not be expected to assume the role of acting staff nurse automatically as the regular nurse assumed that of actual staff nurse after passing the Final State Examination. The dangers inherent in an unco-ordinated interne year were

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1. Chapter XII, Discussion of alternative nurses' performance in interne year, pp.216-225 and pp.230-233
2. Chapter XII, Table 53, p.224 and Table 57, p.234

expressed by Miss E.K. Russell who was commenting on the Canadian two-year courses mentioned earlier in this study.[1]

> "This (interne year) could provide an excellent preparation for nursing practice, but this is not necessarily so. The interne will serve as a graduate nurse while the salary which is promised is much lower than the salary which must be paid to a graduate. Further the interne will be much more under authority and compulsion than the graduate. Hence the interneship might develop into just another form of cheap nursing labour without educational value."2

The position of the Glasgow alternative nurses, who had to complete the third year before gaining official General Nursing Council registration at a salary between the student nurse grant and the pay of a qualified staff nurse, could easily lead to an underestimation of their need for guidance in this third year.

A further problem associated with this interne year of the Glasgow course was the Steering Committee's decision that, during the second six months of the year, the alternative nurses could go to specialty hospitals, previously visited by them as students, in the capacity of post-graduate students. Such a choice seemed misplaced, however, when these nurses, in the opinion of all the observers, still lagged significantly behind the control nurses halfway through the interne year.[3] As the alternative nurses

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1. Canadian two-year courses carried out at Windsor Hospital, Ontario and Toronto Western Hospital, Toronto. For details see Chapter II, pp. 24-31
2. Miss E.K. Russell - The Report of a Study of Nursing Education in New Brunswick - p.20.
3. Chapter XII, Table 51, p. 214 and Table 55, p. 228

appeared to lack confidence in all aspects of their work at this stage in the course, they could not be deemed ready to assume post-graduate status so rapidly.

The inference to be drawn from the analysis of the interne year was that at the beginning of this period most of the alternative nurses were not prepared to assume the role of acting staff nurse, but that as the year progressed more of them were able to do so. There was also an indication that positive planning was necessary to fit them more rapidly for this role; and when this need is better understood they may yet equal and eventually surpass the performance of the control staff nurses.

Another objective of this course, in some respects closely associated with the rate of progress in the interne year, was the development of student status. The formal and specific application of this principle has already been set out in detail,[1] and to this extent its achievement cannot be denied. Beyond this formal use of student status, however, it becomes more difficult to find evidence of the equally important informal development of this concept. When it is recalled that, with very few exceptions, nursing educators and administrators in Great Britain have not themselves been undergraduates, and have not experienced the nice balance between academic freedom and responsibility this situation is not surprising. The process of adjustment required of the nursing profession to meet the total demands of student status were clearly summarised by Miss C.B. Carter who wrote:

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1. Chapter VI, pp77-89 outlines the main differences between the student and apprenticeship methods of training.

> "The administration of a nurse training school presents difficult problems when it is separated from the hospital, and is no longer responsible for providing most of the labour. It might be necessary in the early days to go outside the nursing profession to find an educationist to take charge of the educational side of the experiment because of the desirability of envisaging the education of nurses as a special aspect of the general question of higher education and breaking down the barrier between nursing and other professions. In time nurses would receive a more thorough grounding in educational principles; or young university graduates might train in nursing and bring in a more objective attitude than the girl who starts training as a nurse very young and without previous experience of life."[1]

Such difficulties as Miss Carter referred to did, in fact, become apparent during the course of this experiment, where the educators, though able, had no first-hand academic experience. For instance, in the theoretical part of the course the alternative students in much of their study time had little opportunity of pursuing the subject of their choice, and it was also shown that they had a considerably higher number of classroom tests to carry out in their two-year course than the control students in three years.[2] In the practical field they had supernumerary status, but equally were not given graduated responsibility for patient care which might have helped them to overcome teething troubles when they were rather abruptly given senior status in the nursing team in the interne year.

It has also been noted that these alternative nurses them-

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1. G.B. Carter - New Deal for Nurses, 1939, pp.173-174.

2. Chapter VI, Table No.6, p.97.

selves did not consider that they had achieved real student status on this course. Many of them stated during interviews that they would have appreciated greater academic and social freedom;[1] and their plea is worthy of attention since 72 out of 75 students in this experiment had acquired a school leaving certificate, nearly 25 per cent. of them at university entrance standard and five of them had degrees from Scottish universities.[2]

The last of the experimental objectives to meet with indifferent success so far has been the endeavour to increase the supply of nurses to the profession. One aspect of this objective was to increase the number of students coming into nursing. Despite what appeared to be reasonably effective publicity in Glasgow itself, which is by far the biggest population centre in Scotland, and in certain schools in other parts of Great Britain, there was a strange numerical dearth of applications, although qualitatively those which were made were of high order. It is possible, however, that such publicity as there was did not suffice to combat the effects of the temporary nature of the experiment.

Over a wider geographical area, however, there was some indication that a little knowledge may be dangerous in such matters. During the first year the experiment was in progress the writer had occasion to meet all the matrons and tutors of the

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1. Chapter VI, p. 84, para. 2 and p. 104, para 2.
   Chapter XIV, pp. 250-3 The discussion of the opinions of the alternative nurses.
2. Chapter VII, Table 9, p. 111

general training schools in Scotland; and it was frequently apparent in conversation that just enough was known of the new experiment to arouse mistrust, but not enough to understand its real objectives.

It is also evident from the atypicality of the alternative groups of students that there are only a limited number of such young women interested in nursing at any time; but it was especially disappointing that more than a third of the students for the third alternative group had to be transferred from the candidates selected for the three-year course in Glasgow Royal Infirmary. These were just the higher calibre applicants who could have been expected to apply for the alternative course.[1] It would, however, be unwise to condemn this objective as unsuccessful after only three years of experimentation.

The other part of this same objective was to increase the quantity of trained nursing personnel. This too has to be regarded as unsuccessful so far in most respects. As it has already been pointed out, there is little reason to anticipate that the present trend amongst the alternative nurses, of leaving within a few months of completion of the interne year, will be reversed in view of the present social trend towards earlier marriage and the professional interest of taking a post-certificate course or working abroad.[2] This difficulty has been well demon-

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1. Chapter VII, pp.121-126

2. Chapter XIII - The Follow-up Study, Tables 60 and 61, pp 243+245

strated by the Dan Mason Research Committee's investigation into the occupations of recently qualified staff nurses.[1] There is no logical reason why the alternative nurses should not disperse themselves in a similar way after completing the third year of their course. The most salutary aspect of this particular situation is that the services of the alternative nurses are at least guaranteed for the interne year when, even if only quasi-staff nurses, they are available to the hospital as senior members of the ward team.

Of the non-measurable objectives, such as the development of fuller professional maturity and improvement of patient care, little concrete evidence can be adduced at this stage. By their nature these objectives imply a long-term process of development. All that can be suggested now is that the analyses of student status and the interne year have cast some immediate doubt on the maturity of the alternative nurses; but final judgment should be suspended until a long-term understanding of their capabilities and contribution can be assessed. The same

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1. "Over 57 per cent. of the full-time staff nurses intended to leave their present positions within a year ..... Further training was to be undertaken by 31 per cent. of this group, the majority of whom were going to enter midwifery schools ..... Marriage was the next greatest cause of loss of staff nurses; just over 16 per cent. of the single staff nurses planned to marry."
The Work, Responsibilities and Status of the Staff Nurse. Report published by the Dan Mason Nursing Research Committee of the National Florence Nightingale Memorial Committee, London, 1960, p.10.

criteria also apply to any evaluation of the improvement of patient care. The accomplishment of this particular objective will also depend on the type of position achieved by the alternative nurses in the future.

The Achievement of the Wider Objectives of the Glasgow Experiment

It is important that this experiment should be assessed finally in terms of its wider objectives, as well as the immediately specified ones already discussed. One of the major problems of this study has been that the application of the experiment has only been studied in one hospital with a highly atypical group of students. It is nevertheless an underlying purpose that, if really successful, it should be applicable to many of the student nurses in Scotland, and Great Britain, so that this type of course may become the accepted form of basic nursing education.

On the basis of the performance of the average student nurses discussed in Chapter XV, it seems probable that the top third of these students who were placed in category one, on account of their educational and intellectual ability, would have a reasonable chance of succeeding in the experimental type of course; whereas it was equally considered unlikely that the third of the average students in category three, all of whom had an Otis Intermediate intelligence quotient of less than 100, would be suitable candidates.[1]

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1. Chapter XV, pp.284-285

It would be unwise to state categorically that none of these students would succeed in the new course; but in view of all the evidence provided that most of them just passed the Preliminary State Examination, that they took significantly longer to do so, and that a higher percentage of them left on account of educational unsuitability, their ability to undertake a more intensive and comprehensive course must be seriously questioned.[1] It will also be recalled that the control students with an intelligence score of less than 100 in the N.I.I.P. Group Test 33 had, almost without exception, achieved much poorer results in their theoretical tests than their better qualified colleagues.[2]

If the new course had relied on practical assessment alone, such as the ward practical tests carried out especially for this evaluation, then the prospects of the category three students would be good, because it appeared that educational and intellectual ability had no effect upon this test for either the alternative or control students. On this basis it would seem that the category three students might well achieve the clinical expertise required as well as the other better educated students.[3]

The category two average students, are, however, the most

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1. Chapter XV, Tables 66 to 70 pp.273-275 and Table 71, p.277
2. Chapter VIII, Table 27, p.152 and Chapter IX, Table 35, p.169
3. Chapter X, Tables 40 to 44, pp.184-186 & 188

difficult group to assess, and it is considered that somewhere in this group the cut-off point would be found. It is not easy to see how the facilities and requirements of the new course would affect this group. Firstly, it has been noted that the experimental method is more demanding academically in so far as more theory has to be learned in a much shorter period of time and additions have also been made to the basic syllabus. Secondly, it has also been shown that the new course provides many advantages such as shorter working hours, an integrated programme with more supervision available and less responsibility for patient care. These differences might enable some of these intermediate grade students to achieve better results than they can do in the traditional pattern of training.

It can only be noted again, however, that in the evaluation of the alternative and control groups it has been shown that educational and intellectual ability tended to have more influence on the students' performance in theoretical tests than variations between the two courses. This would seem to indicate that the intensity of the new course might be a more important factor than the better conditions provided in cases where the intellectual borderline is being reached.[1]

It was certainly unfortunate that the alternative students selected for this experiment were so highly atypical compared with the average intake in Scotland as a whole; and until the new

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1. Chapter VIII, Tables 25 to 29, pp.152-153-156 & Chapter IX, Tables 33 to 37, pp.167-169-171

course is undertaken by an unselected sample of students the exact proportion of them able to succeed will not be known.

There has also been another recent development in nursing policy in England and Wales which is likely to affect the calibre of student accepted for general training in the near future, and has a direct bearing on the application of the alternative method of training on a national basis. As from July 1962 would-be student nurses in England and Wales will be required to possess certain entrance qualifications before being admitted to a training school. They must have at least two passes at ordinary level in the General Certificate of Education (one of which must be English or Welsh language) and have had five years of senior secondary education, or have attended a pre-nursing course and passed Part I of the Preliminary State Examination of the General Nursing Council. Failing such qualifications candidates will have to pass an intelligence test devised for this purpose by the Council.[1] It is anticipated that similar regulations will be enforced by the Scottish General Nursing Council in the near future.

The effect of these new entrance standards may be to eliminate the category three type of student at present being admitted for training as professional nurses, so that in the near future it is possible that the average and alternative student nurses will become more homogeneous. In these circum-

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1. The Nurses (Amendment) Rules, Approval Instrument, 1960, No. 409.

stances nearly all the average students would have a more reasonable expectation of undertaking the experimental method of training successfully.

Perhaps the most important underlying purpose of the Glasgow experiment was to establish a more satisfactory balance between nursing education and service than has existed previously. This was the problem which had beset the nursing profession in North America and Britain, as indicated in the introductory chapters of this study. It could be said that the primary objective of the Glasgow experiment was to educate student nurses for service rather than by service, and the extent to which a correct equilibrium was established between these factors will be the ultimate measure of the value of the new course. At this time it is only possible to look at the short-term results achieved, but these have shown that up to the time of passing their qualifying examinations the alternative students' performance was rather better than the controls.[1] In addition the notable reduction in wastage during this phase of the course also indicated the benefits to be derived from the new method of nursing education.[2] In both these achievements the Glasgow course closely resembled its North American prototypes already discussed earlier in this study. Only in respect

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1. See Analyses of Routine and specially designed tests described in Chapters VIII, IX and X.
2. Chapter XI, Table 47, p. 199

of improving the recruitment of candidates was the outcome of the Scottish course less satisfactory. [1]

After the completion of the Final State Examination, however, the outcome of the evaluation study was different; and the performance of the alternative nurses in their interne year led to the inevitable conclusion that they were less competent than the control staff nurses. In reaching this disappointing conclusion the Glasgow experiment finds itself in an isolated position, because, as previously indicated, no systematic attempt had been made to evaluate this last phase of the similar North American courses.

The discovery of the cause of such a development has had, therefore, to be sought solely on the evidence provided in this study. It was apparent that, despite a serious attempt by the curriculum planners to balance the education and service needs in the experimental course, this requirement had not been adequately met at all stages, and that in some respects the traditional method of training provided advantages now excluded or reduced in the new course. Such a possibility appears at first unlikely in view of the additional facilities available to the alternatives nurses, but on closer inspection of the findings based on the all-important interne year it becomes reasonably certain that the greater success of the control staff nurses was especially attributable to two factors which were traditional features of the regular course.

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1. Chapter II, pp.28-30

The first of these was that the regular students had to assume greater responsibility for patient care as their course progressed. More frequently than not third year students have deputised for the ward sister by day and been in full charge of a ward by night before taking their Final Examination.[1] This is part of the apprenticeship system which has been stated to place undue responsibility upon trainees, and has been severely criticised for many years.

In contrast to this situation the almost total lack of responsibility assumed by the alternative nurses before taking their Final State Examination has also been illustrated, with the result that the sudden assumption of responsibility by them at a later stage in their course has handicapped their ultimate progress more than the nurses trained by the traditional methods. The usual routine of introducing a student nurse to responsibility before she becomes a staff nurse was not available to the alternative nurses. Except for a few weeks in the fifth and sixth terms they did not have an opportunity of integral membership of the ward nursing team. They certainly worked alongside the regular students throughout their course, but they did not, like them, accept responsibility for a certain aspect of ward routine and administration. Even the presence of clinical instructors, whose admirable attitude and high standards have already been noted, may have lessened the informal teacher student relationship which should exist between a ward sister

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1. Chapter VI, pp. 84 & 85

and student nurse.[1]

Another differentiating feature of the experimental course was the minimal amount of night duty expected of the alternative students, and at no time were they given responsibility for the ward. The over-rapid assumption of responsibility for the care of patients by junior student nurses at night is to be deplored, but equally if they are gradually introduced into the situation a few months before taking their Final State Examination it provides valuable experience and develops their confidence as nothing else can. It will also be recalled that these alternative nurses themselves had stressed the need they felt to assume greater responsibility for patient care before entering their interne year, and had suggested that more time spent on night duty would have been beneficial.[2]

The second feature of the traditional course, which, according to the data available on the interne year, contributed to the better performance of the control staff nurses, was the much greater amount of clinical experience available in the regular course over a longer period of time.[3] Again, the bogey of repetition in the basic nursing course has been raised frequently in recent years and probably with justification. Nevertheless, some of the difficulties of the alternative nurses in their interne year were certainly due to lack of rather than excessive repetition of nursing tasks or contact with patients.[4]

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1. Chapter VI, pp. 100-104
2. Chapter VI, pp. 84-85 and Chapter XIV, pp. 250-253
3. Chapter VI. Table 7, p. 99
4. Chapter XII, p. 218

It is evident that these two principal defects in the experimental course - lack of progressive responsibility and clinical experience - were the outcome of an intentional and understandable swing of the pendulum away from the 'evils' of the apprenticeship form of training. But it may well be that in their desire to rectify such faults and to educate students for service rather than by service the curriculum planners have over-emphasised the theoretical at the cost of the practical aspect of the course. In training for a profession such as nursing, however, there should probably be no arbitrary division between theory and practice. The full development of the former will depend upon the adequate incorporation of the latter. A warning of the need to establish an equilibrium between the theoretical and practical content of the course was mentioned not only in the Lancet Commission Report in 1932, but later in the Report of the Horder Committee of 1943, when it was recommended that:

> "There is nothing incompatible between apprenticeship and studentship, as witness the training of engineers. The nurse trainee must, however, be a student first and an apprentice second. She has much ground to cover in a limited period. Her training must be planned so that she obtains a regular sequence of practical experience, so that she spends sufficient time on routine tasks to understand and perfect herself in their performance".1

The conclusion to be established from this part of the discussion is that the optimum form of basic nursing education probably lies somewhere between the traditional and experimental patterns; and that if a correct equilibrium can be established it is likely that, given suitable candidates, the difficulties

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1. Nursing Reconstruction Committee of the Royal College of Nursing, The Report on Education and Training, Section II, p.12.

currently encountered in the interne year by the alternative nurses would disappear.

Whatever its imperfections it was inevitable that this first British experiment in basic nursing education would be a comparatively successful enterprise, simply because the defects of the current system have been so apparent. The experiment has, in fact, performed a double service to the nursing profession. It has firstly shown that in this country, as elsewhere, first rate students can be trained more rapidly by a carefully planned and integrated course; and that there is a point at which the problems, such as high wastage and dissatisfaction with conditions of training, which have become almost endemic, will respond to certain changes in the type of course provided and personnel selected.

But equally important have been the limitations of this experimental course which have also become evident. One of these is that this type of course requires students of a minimum intellectual calibre if it is to be successfully attempted, and thus its employment as a national method of training will be considerably limited as compared with the present three-year course. Another equally important lesson to be learned has been the appreciation of the value of certain aspects of the traditional method of training, which should be incorporated in the experimental type of course, if the best all-round basic nursing education is to be

provided for students in the future.

The statement of a famous English statesman that "the New World should be called in to redress the balance of the Old" may be aptly applied to the outcome of this experiment; but it would in this instance be equally true to say that "the Old World should be called in to redress the balance of the New". It is a humbling recollection that a century ago Florence Nightingale had discovered that nursing was a profession in which women of a wide range of talent and ability may play a part, but that only a certain number of them will be capable of full professional training and responsibility; and of even greater importance was the emphasis she placed upon the necessity of balancing carefully the amount of theoretical instruction and practical bedside experience made available to the trainee nurse. The times and the syllabus have both changed out of recognition, but the nursing profession in Scotland, and elsewhere, is indebted to the Glasgow experiment for the opportunity of relearning these elementary principles of basic nursing education.

## SECTION VIII

## REFERENCES.

### Books.


Abel-Smith,B. — A History of the Nursing Profession, Heinemann, London, 1960.

Balme, H. — A Criticism of Nursing Education, Humphrey Milford, London, 1937.

Bridgman, M. — Collegiate Education for Nursing, Russell Sage Foundation, New York, 1955.

Brown, E.L. — Nursing for the Future, Russell Sage Foundation, New York, 1948.

Carter, G.B. — A New Deal for Nurses, Gollancz, London, 1939.

Dunbar, V.M. — The Origin and Early Development of Two English Training Schools for Nurses. The Nightingale Training School, St. Thomas's and the Guy's Hospital Training School, Florence Nightingale International Foundation, London, 1936.

Lambertson, E.C. — Education for Nursing Leadership, J.P. Lippincott Co., Philadelphia, 1958.

Montag, M.L. — Community College Education for Nursing, The McGraw Hill Book Co., Inc., New York, 1959.

Nightingale F. — From Suggestions on the Subject of Providing Training and Organising Nurses for the Sick Poor in Workhouse Infirmaries, London, 1867.

Russell, E.K. — Report of a Study on Nursing Education in New Brunswick, University of Fredericton, New Brunswick, 1956.

Shryock, R.H. — The History of Nursing, Saunders & Co., Philadelphia and London, 1959.

Weir, G.M. — Survey of Nursing Education in Canada, University Press, Toronto, 1932.

Woodham-Smith, C. — Florence Nightingale, Constable, London, 1950.

## REFERENCES.


Reports and Surveys.

Ministry of Health, Department of Health for Scotland Ministry of Labour and National Service:

The Report of the Working Party on the Recruitment and Training of Nurses, H.M.S.O., London, 1947.

Ministry of Health, Interdepartmental Committee on Nursing Services:

Interim Report (Athlone Committee), H.M.S.O., London, 1939.

Department of Health for Scotland, Scottish Health Services Council:

The Work of Nurses on Hospital Wards, H.M.S.O., Edinburgh, 1955.

Department of Health for Scotland, Scottish Health Services Council:

Report of the Steering Committee on Experimental Nurse Training, Edinburgh, 1955. (unpublished).

Department of Health for Scotland, Scottish Health Statistics:

For the year 1958, published by H.M.S.O., August, 1959.
For the year 1959, published by H.M.S.O., August, 1960.

First Report of the Nurses' Salaries Committee, London, February, 1943.
Second Report of the Nurses' Salaries Committee, London, December, 1943.

The General Nursing Council:

Observation submitted to the Ministry of Health on Ministry's Working Party Report, London, 1947.

Report of the South Eastern Metropolitan Area Nurse Training Committee to the General Nursing Council for England and Wales, (together with comments of the Council):

The Work of Student Nurses and Pupil Assistant Nurses, London, 1957.

Nursing Reconstruction Committee of the Royal College of Nursing:

Section I - The Assistant Nurse, August, 1942.

Section II - The Report on Education and Training, December, 1943.

Section III - The Report on Recruitment, December, 1943.

Section IV - The Social and Economic Condition of the Nurse, December, 1949.

## REFERENCES.

Royal College of Nursing:

Observations and Objectives, London, 1956.

The Lancet Ltd.:

The Report of the Lancet Commission on Nursing, London, 1932.

The Nuffield Provincial Hospitals Trust:

The Work of Nurses in Hospital Wards. Report of a Job Analysis, London, 1953.

King Edward's Hospital Fund for London:

Comments on the Report of the Working Party on the Recruitment and Training of Nurses Submitted to the Minister of Health, London, 1947.

Dan Mason Nursing Research Committee of the Florence Nightingale Memorial Committee of Great Britain and Northern Ireland:

The Work, Responsibilities and Status of the Staff Nurse, London, 1960.

Report of the Committee on the Study of Nursing Education, (prepared by Josephine Goldmark):

Nursing and Nursing Education in the United States, New York, 1923.

National Committee for the Improvement of Nursing Services, (Margaret West and Christy Hawkins):

Nursing Schools at the Mid-Century, New York, 1950.

Report of the Evaluation of the Metropolitan School of Nursing, Windsor Ontario. Dr. A.R. Lord, Windsor, 1952.

Report of the Experiment in Nursing Education of the Atkinson School of Nursing, the Toronto Western Hospital. Dr. W. Stewart Wallace, Toronto, 1955.

University of New York State:

Review of Higher Education, New York, 1931.

W.H.O. Regional Office for Europe:

Study Group on Basic Nursing Curriculum in Europe, Geneva, 1956.

Report on Finnish Nursing Service, by Sirke Helle, Director of Nursing, State Nedical Board, Helsinki, 1958, (unpublished).

Articles in Journals

British Medical Journal: The Future of Nursing, 13.9.1947, pp. 422-423.

The Recruitment and Training of Nurses. (An Annotation on the Working Party Report by The Medical Women's Federation), 29.5, 1948, p. 1057.

Lancet: The Recruitment and Training of Nurses, 13.9.1947, p.401 General Nursing Council's Reply to Working Party: Annotation, 12.6.1948, p.916.

British Journal of Preventive and Social Medicine: Survey of Entrants to Nurse Training Schools and of Student Nurse Wastage in the Birmingham Region. (K.W. Cross and D.L.A. Hall) Vol. VIII, 1954. pp. 70-76.

The Training of Student Nurses, (A. Barr), Vol. XIII, No. 3, 1959, pp. 149-155.

Nursing Times: 1. The Selection of Student Nurses, (Asenath Petrie and M.B. Powell), 11.3.1950, pp. 250-258.

2. Nursing Degree Course in Alexandria, Topical Notes, 21.11.1953. p.1182.

3. Student Nurse Wastage, East Anglia, 28.8.1954, p.921.

4. Predicting the Successful Nurse, (T. Lee), 29.4.1960 p. 538.

Nursing Mirror: New Zealand University Course, News from the World of Nursing, 22.4.1960,

American Journal of Nursing: We Study our Basic Programme, (Ruth Sleeper), Vol. 51, No. 11, pp. 681 - 683.

The Canadian Nurse: The Metropolitan School of Nursing, (N. Fiddler), Vol. 48, No. 11, November, 1952.

South African Journal of Nursing: Four and a Half Years' Course at the University of Pretoria (Mrs. C. Searle), April, 1956, p.20.

International Nursing Review: The Nightingale School of Nursing Toronto, (Mrs. Blanche Duncanson), August, 1960, pp. 39 - 40.

# REFERENCES.

## Legislation

Nurses' Act, 1949, 12 and 13. Geo., 6, Ch. 73.

Nurses' (Scotland) Act, 1949, 12,13 and 14. Geo., 6, Ch. 95.

Nurses' (Scotland) Act, 1951, 14 and 15. Geo., 6, Ch. 55.

Nurses' Act, 1957, 5 and 6. Eliz. II, Ch. 15.

Nurses' (Amendment) Rules, Approval Instrument, 1960, No. 409.

## Parliament

House of Lords debate on the Shortage of Nurses, 9.11.1947.

RAW DATA TABLES SECTION IX

IN ALL THESE APPENDICES TABLES THE FIGURES IN BRACKETS INDICATE THE NUMBERS OF STUDENTS ATTAINING THE SAME MARK OR SCORE

**The Intelligence Scores achieved by the Alternative Nurses and Glasgow Royal Infirmary Control Nurses in the N.I.I.P. Group Test 33**

**Table I**

| | Alternative Students 1956 | Control * Students 1955 |
|---|---|---|
| | N.I.I.P. Gp. Test 33 | Otis Intermediate Test |
| | 172 A+ | 114 (3) |
| | 168 A | 113 (3) |
| | 162 A | 112 (2) |
| | 158 A | 111 (3) |
| | 158 A | 110 (6) |
| | 151 A | 109 (7) |
| | 149 A | 108 (4) |
| | 146 A | 107 (5) |
| | 138 B+ | 106 (3) |
| | 137.5 B+ | 105 (4) |
| | 137 B+ | 104 (4) |
| | 136 B+ | 103 |
| | 134 B+ | 102 (3) |
| | 132 B+ | 101 (3) |
| | 128 B | 99 (3) |
| | 125.5 B | 98 |
| | 122 B (2) | 90 |
| | 121 B | 88 |
| | 118.5 C+ | unknown (1) |
| | 115 C+ (2) | |
| | 113.5 C | |
| | 105 C | |
| No. in Group | 24 | 58 |

* The Otis Intermediate Test was used for the first group of Control students in 1955.

**Table II**

| | Alternative Students 1957 | Control Students 1956 |
|---|---|---|
| | N.I.I.P. Gp. Test 33 | N.I.I.P. Gp. Test 33 |
| | 185 A+ | 157.5 A |
| | 172 A+ | 154 A |
| | 163 A | 148 A |
| | 160 A | 147 A |
| | 155 A | 145 A |
| | 150 A | 142 A |
| | 148 A | 140.5 A |
| | 147 A | 140 A (2) |
| | 146 A | 138 B+ |
| | 145 A | 132.5 B+ |
| | 144 A | 131.5 B+ |
| | 141.5 A | 130.5 B+ |
| | 140 A (2) | 129 B |
| | 138 B+ | 126 B (2) |
| | 137.5 B+ | 124.5 B |
| | 135.5 B+ | 123 B (2) |
| | 134.5 B+ | 121.5 B |
| | 134 B+ | 116 C+(4) |
| | 133 B+ | 113.5 C+ |
| | 130 B+ | 114 C |
| | 129 B | 113.5 C |
| | 126.5 B | 110 C |
| | 125.5 B | 105 C (2) |
| | 121 B | 104.5 C |
| | 110.5 C | 100 C |
| | | 99 C |
| | | 98 C |
| | | 94 C |
| | | 93.5 C |
| | | 90.5 C |
| | | 84 D |
| | | 83.5 D |
| | | 73 D |
| | | 69 E |
| | | unknown (1) |
| No. in Group | 26 | 42 |

Table III — The Intelligence Scores achieved by the Alternative Nurses and Glasgow Royal Infirmary Control Nurses in the N.I.I.P. Group Test 33

| Alternative Students 1958 | | Control Students 1957 | |
|---|---|---|---|
| N.I.I.P. Gp. Test 33 | | N.I.I.P. Gp. Test 33 | |
| 170 | A+ | 158 | A |
| 166.5 | A | 157 | A |
| 165 | A | 155 | A |
| 163 | A | 152 | A |
| 154 | A | 144 | A (2) |
| 150 | A | 143.5 | A |
| 148 | A | 142 | A (2) |
| 147 | A | 140 | A (4) |
| 145 | A | 139 | B+(2) |
| 143 | A | 137.5 | B+ |
| 141.5 | A | 136.5 | B+(2) |
| 139.5 | B+ | 135.5 | B+ |
| 139 | B+ | 134.5 | B+ |
| 138 | B+(2) | 134 | B+ (2) |
| 135 | B+ | 133 | B+ (2) |
| 134 | B+ | 132.5 | B+ |
| 132 | B+ | 132 | B+ |
| 130 | B+ | 130.5 | B+ |
| 128 | B+ | 130 | B+(2) |
| 127 | B | 129.5 | B |
| 126.5 | B | 129 | B (4) |
| 126 | B | 128 | B |
| 109 | C | 127 | B |
| 107.5 | C | 126.5 | B |
| | | 126 | B |
| | | 125 | B |
| | | 124.5 | B |
| | | 124 | B |
| | | 123 | B |
| | | 120 | B |
| | | 119 | C+ (4) |
| | | 116 | C+ |
| | | 114.5 | C (2) |
| | | 113 | C |
| | | 112 | C (3) |
| | | 111 | C |
| | | 107.5 | C |
| | | 103 | C |
| | | 100.5 | C |
| | | 98.5 | C |
| | | 97.5 | C (2) |
| | | 94 | C |
| | | 90.5 | C |
| | | 90 | C |
| | | 85 | D (3) |
| No. in Gp. 25 | | 83 | D (No. in Group = 68) |

TABLE IV

General Nursing Council Examination Results

October, 1958

The Grading of Students in the Re-marked Papers

| Surgery | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 5 | 10 | - | 9 | 6 |
| Grade B (60 - 69%) | 18 | 18 | 5 | 9 | 7 |
| Grade C (50 - 59%) | 1 | 1 | 1 | 3 | 7 |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 24 | 29 | 6 | 21 | 20 |

TABLE V

General Nursing Council Examination Results

October, 1958

The Grading of Students in the Re-marked Papers

| Medicine | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | - | 2 | - | 1 | 2 |
| Grade B (60 - 69%) | 20 | 23 | 5 | 14 | 12 |
| Grade C (50 - 59%) | 4 | 4 | 1 | 6 | 6 |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 24 | 29 | 6 | 21 | 20 |

TABLE VI

General Nursing Council Examination Results

October, 1958

The Grading of Students in the Re-marked Papers

| Nursing Written | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 10 | 8 | 1 | 9 | 2 |
| Grade B (60 - 69%) | 10 | 17 | 4 | 7 | 7 |
| Grade C (50 - 59%) | 4 | 4 | 1 | 5 | 11 |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 24 | 29 | 6 | 21 | 20 |

TABLE VII

General Nursing Council Examination Results

October, 1958

The Grading of Students in the Re-marked Papers

| Nursing Practical | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 19 | 10 | 1 | 10 | 8 |
| Grade B (60 - 69%) | 5 | 11 | 3 | 7 | 7 |
| Grade C (50 - 59%) | - | 8 | 2 | 2 | 4 |
| Grade D (40 - 49%) | - | - | - | 2 | 1 |
| Total No. in group | 24 | 29 | 6 | 21 | 20 |

TABLE VIII

General Nursing Council Examination Results

October, 1958

The Grading of Students in the Re-marked Papers

| Nursing Combined | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 15 | 8 | 1 | 7 | 2 |
| Grade B (60 - 69%) | 8 | 15 | 5 | 10 | 11 |
| Grade C (50 - 59%) | 1 | 6 | - | 2 | 6 |
| Grade D (40 - 49%) | - | - | - | 2 | 1 |
| Total No. in group | 24 | 29 | 6 | 21 | 20 |

TABLE IX

General Nursing Council Examination Results

October, 1959

The Grading of Students in the Re-marked Papers

| Surgery | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 7 | 2 | 3 | 3 | 1 |
| Grade B (60 - 69%) | 13 | 8 | 6 | 18 | 11 |
| Grade C (50 - 59%) | 6 | 6 | 6 | 9 | 2 |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 26 | 16 | 15 | 30 | 14 |

TABLE X

General Nursing Council Examination Results

October 1959

The Grading of Students in the Re-marked Papers

| Medicine | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 4 | 2 | - | 4 | 1 |
| Grade B (60 - 69%) | 19 | 6 | 7 | 21 | 9 |
| Grade C (50 - 59%) | 3 | 5 | 8 | 5 | 4 |
| Grade D (40 - 49%) | - | 3 | - | - | - |
| Total No. in group | 26 | 16 | 15 | 30 | 14 |

TABLE XI

General Nursing Council Examination Results

October, 1959

The Grading of Students in the Re-marked Papers

| Nursing Written | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 21 | 11 | 6 | 18 | 5 |
| Grade B (60 - 69%) | 5 | 3 | 7 | 9 | 8 |
| Grade C (50 - 59%) | - | 2 | 2 | 3 | 1 |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 26 | 16 | 15 | 30 | 14 |

TABLE XII

General Nursing Council Examination Results

October, 1959

The Grading of Students in the Re-marked Papers

| Nursing Practical | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 18 | 12 | 12 | 22 | 14 |
| Grade B (60 - 69%) | 5 | 2 | 3 | 7 | - |
| Grade C (50 - 59%) | 2 | - | - | 1 | - |
| Grade D (40 - 49%) | 1 | 2 | - | - | - |
| Total No. in group | 26 | 16 | 15 | 30 | 14 |

TABLE XIII

General Nursing Council Examination Results

October, 1959

The Grading of Students in the Re-marked Papers

| Nursing Combined | No. of Alternative Students | No. of G.R.I. Regular Control | No. of G.R.I. P.N.S. Control | No. of E.R.I. Regular Control | No. of E.R.I. P.N.S. Control |
|---|---|---|---|---|---|
| Grade A (70 - 100%) | 19 | 10 | 9 | 20 | 13 |
| Grade B (60 - 69%) | 6 | 3 | 6 | 9 | 1 |
| Grade C (50 - 59%) | 1 | 3 | - | 1 | - |
| Grade D (40 - 49%) | - | - | - | - | - |
| Total No. in group | 26 | 16 | 15 | 30 | 14 |

TABLE XIV

General Nursing Council Examination Results
October, 1958
Order of Merit achieved by Students in
the Re-Marked Papers

**Surgery**

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 | 1 | 48 (2) | 3 | 13 |
| 12 | 4 | 65 | 5 | 17 (3) |
| 13 | 6 (2) | 73 (2) | 6 | 24 (2) |
| 17 | 9 (2) | 100 | 9 | 31 |
| 24 | 13 | | 13 | 39 |
| 31 (2) | 17 | | 17 (2) | 60 |
| 39 (3) | 24 (2) | | 24 (2) | 65 (2) |
| 48 (6) | 31 (2) | | 31 (3) | 73 (2) |
| 60 | 39 (3) | | 39 (2) | 88 (3) |
| 65 (2) | 48 (3) | | 48 | 94 |
| 73 (2) | 60 (3) | | 65 | 96 (3) |
| 81 (2) | 65 (2) | | 81 (2) | |
| 94 | 73 (2) | | 88 (3) | |
| | 81 (3) | | | |
| | 96 | | | |
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| | | | | |
| | | | | |
| | | | | |
| Total No. in Group | 24 | 29 | 6 | 21 | 20 |

TABLE XV

General Nursing Council Examination Results
October, 1958
Order of Merit achieved by Students in
the Re-Marked Papers

**Medicine**

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 6 | 4 (2) | 52 (4) | 2 | 1 |
| 7 (4) | 7 | 69 | 14 (2) | 2 |
| 12 | 12 | 91 | 18 (2) | 14 |
| 26 | 14 | | 27 (4) | 18 (3) |
| 27 (2) | 18 (3) | | 40 (3) | 27 |
| 39 | 27 (5) | | 52 (2) | 40 |
| 40 (3) | 40 (5) | | 69 | 52 (2) |
| 52 (3) | 52 (5) | | 80 (4) | 69 (4) |
| 68 | 69 (2) | | 91 (2) | 80 |
| 69 (3) | 80 | | | 88 (2) |
| 80 (2) | 88 | | | 91 (2) |
| 99 (2) | 91 (2) | | | 98 |
| | | | | |
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| | | | | |
| | | | | |
| Total No. in Group | 24 | 29 | 6 | 21 | 20 |

TABLE XVI

General Nursing Council Examination Results
October, 1958
Order of Merit achieved by Students in
the Re-Marked Papers

**Nursing Written**

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 (2) | 4 | 1 | 5 (2) | 13 |
| 5 (2) | 5 | 51 (2) | 10 (2) | 19 |
| 10 | 16 (2) | 59 | 18 | 51 (2) |
| 13 (2) | 19 (3) | 71 | 26 (4) | 57 |
| 19 (3) | 26 | 76 | 31 | 59 |
| 33 | 31 | | 35 (2) | 65 |
| 35 | 33 | | 43 | 73 (2) |
| 39 (2) | 35 | | 47 | 76 (2) |
| 43 (2) | 39 (2) | | 51 | 80 |
| 47 (2) | 43 | | 65 | 81 |
| 59 | 47 | | 81 | 86 (2) |
| 71 | 51 | | 84 | 95 |
| 81 | 57 | | 86 | 96 (3) |
| 86 | 59 (3) | | 90 | 99 |
| 91 | 65 (4) | | 93 | |
| 100 | 73 | | | |
| | 76 | | | |
| | 84 | | | |
| | 91 | | | |
| | 93 | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| Total No. in Group | 24 | 29 | 6 | 21 | 20 |

TABLE XVII

General Nursing Council Examination Results
October, 1958
Order of Merit achieved by Students in
the Re-Marked Papers

**Nursing Practical**

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 1 | 5 | 29 | 2 | 3 (2) |
| 6 (2) | 9 (2) | 65 | 8 | 9 |
| 9 (3) | 15 | 71 | 19 (2) | 22 (2) |
| 15 (3) | 19 | 73 | 22 (3) | 34 |
| 27 | 27 | 85 | 29 | 38 (2) |
| 31 (2) | 34 | 91 | 31 | 50 (2) |
| 34 | 38 (3) | | 34 | 58 (2) |
| 38 (6) | 49 | | 50 (2) | 73 |
| 50 | 55 | | 55 | 75 |
| 55 | 58 (4) | | 58 | 79 |
| 65 (3) | 65 | | 65 | 82 (2) |
| | 71 | | 75 | 95 |
| | 75 | | 79 | 96 |
| | 78 | | 88 | 98 |
| | 79 | | 91 | |
| | 82 | | 99 | |
| | 85 (2) | | 100 | |
| | 89 (2) | | | |
| | 91 | | | |
| | 94 | | | |
| | 97 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Total No. In Group | 24 | 29 | 6 | 21 | 20 |

TABLE XVIII

General Nursing Council Examination Results
October, 1958
Order of Merit achieved by Students in
the Re-Marked Papers

Nursing Combined

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 | 1 | 19 | 2 | 11 |
| 5 | 5 | 54 | 4 | 29 |
| 7 (2) | 7 | 66 | 10 | 34 (2) |
| 11 (2) | 24 | 69 | 14 | 38 |
| 14 | 26 | 72 | 16 | 46 |
| 16 (2) | 29 | 81 | 21 | 48 |
| 19 | 32 (2) | | 26 | 56 |
| 21 | 34 | | 34 | 72 (3) |
| 23 | 40 | | 38 | 78 (2) |
| 24 | 41 | | 41 | 84 (2) |
| 26 | 48 | | 43(2) | 90 |
| 29 | 51 | | 59 | 93 |
| 43 | 52 (2) | | 62(2) | 95 (2) |
| 46 | 56 (2) | | 66 | 99 |
| 48 | 59 (2) | | 72 | |
| 55 | 62 (2) | | 84 | |
| 66 | 72 | | 88 | |
| 69 | 78 | | 94 | |
| 71 | 83 | | 100 | |
| 82 | 84 | | | |
| 95 | 88 | | | |
| | 91 (2) | | | |
| | 98 | | | |
| | | | | |
| | | | | |
| Total No. in Group | 24 | 29 | 6 | 21 | 20 |

TABLE XIX

General Nursing Council Examination Results
October, 1959
Order of Merit achieved by Students in
the Re-Marked Papers

Surgery

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 | 9 | 3 | 1 | 13 |
| 4 | 13 | 4 | 4 | 20 (2) |
| 7 (2) | 17 | 9 | 9 | 37 (3) |
| 9 | 20 | 17 | 17 | 47 (2) |
| 13 (2) | 29(2) | 20 | 20 (4) | 56 |
| 20 | 47 | 37 | 29 (3) | 66 (3) |
| 29 (3) | 56(3) | 47 | 37 (4) | 81 |
| 37 (3) | 73 | 56(2) | 47 | 91 |
| 47 (3) | 81(2) | 73 | 56 | |
| 56 (3) | 86(3) | 81 | 66 (4) | |
| 73 (3) | | 91 | 73 (3) | |
| 81 | | 99(2) | 86 | |
| 86 | | 101 | 91 (2) | |
| 91 | | | 96 (3) | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| Total No. in Group | 26 | 16 | 15 | 30 | 14 |

TABLE XX

General Nursing Council Examination Results
October, 1959
Order of Merit achieved by Students in
the Re-Marked Papers

**Medicine**

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 3 (2) | 3 | 19 | 1 | 7 |
| 7 (2) | 7 | 25 | 2 | 25 |
| 12 (6) | 25 | 32(2) | 3 | 32 (2) |
| 19 | 32 (2) | 44 | 7 | 44 (3) |
| 32 (3) | 44 (2) | 56 | 12 | 56 |
| 44 (3) | 66 | 66 | 19 (4) | 66 (2) |
| 56 (4) | 74 | 74(3) | 25 (4) | 74 |
| 66 (2) | 81 | 81 | 32 (3) | 84 |
| 74 | 88 (2) | 84 | 44 (5) | 88 |
| 84 | 93 | 88 | 56 (4) | 97 |
| 88 | 99 | 94 | 66 (2) | |
| | 100 | 97 | 74 | |
| | 101 | | 81 | |
| | | | 84 | |
| | | | 94 (2) | |
| Total No. in Group | 26 | 16 | 15 | 30 | 14 |

TABLE XXI

General Nursing Council Examination Results
October, 1959
Order of Merit achieved by Students in
the Re-Marked Papers

Nursing Written

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 | 15 | 6 | 1 | 30(2) |
| 3 | 21 (3) | 10 | 10 (2) | 36 |
| 4 | 26 | 15 | 15 (3) | 43 |
| 5 | 43 (3) | 26 | 30 (2) | 50 |
| 6 | 50 | 36 | 36 (2) | 66 |
| 8 | 56 (2) | 50 | 43 (2) | 68 |
| 9 | 68 | 63 | 50 | 72 |
| 10 | 73 | 68 | 56 (5) | 73(2) |
| 14 | 86 | 76 | 63 | 76 |
| 15 | 100 | 79 (2) | 68 | 79 |
| 21 (2) | 101 | 86 | 76 | 86 |
| 26 (2) | | 92 | 82 | 99 |
| 30 (2) | | 94 | 84 | |
| 36 (3) | | 96 | 86 (3) | |
| 43 | | | 93 | |
| 50 (2) | | | 95 | |
| 63 | | | 97 | |
| 66 | | | 98 | |
| 82 | | | | |
| 84 | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Total No. in Group | 26 | 16 | 15 | 30 | 14 |

TABLE XXII

General Nursing Council Examination Results
October, 1939
Order of Merit achieved by Students in
the Re-Marked Papers

Nursing Practical

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 5 | 7 | 15 | 1 (2) | 9 (2) |
| 19 | 11 | 22 | 3 (2) | 11 |
| 24 (2) | 15 | 24 (2) | 5 | 19 (2) |
| 33 (3) | 22 | 40 (2) | 7 | 33 (2) |
| 40 | 24 (2) | 57 (2) | 11 (2) | 40 (3) |
| 45 | 45 | 65 | 15 (2) | 45 (2) |
| 52 (2) | 52 | 71 (3) | 24 (3) | 52 |
| 57 | 60 (2) | 83 (2) | 33 (2) | 60 |
| 60 (2) | 66 (2) | 88 | 45 (2) | |
| 65 (2) | 89 | | 52 | |
| 75 (2) | 91 | | 65 | |
| 79 | 100 | | 71 | |
| 90 | 101 | | 75 | |
| 93 (2) | | | 76 | |
| 95 | | | 79 (3) | |
| 96 | | | 83 (3) | |
| 98 | | | 92 | |
| 99 | | | 97 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Total No. in Group | 26 | 16 | 15 | 30 | 14 |

XXIII

TABLE

General Nursing Council Examination Results
October, 1939.
Order of Merit achieved by Students in
the Re-Marked Papers

Nursing Combined

| O.M. of Alternative Students | O.M. of G.R.I. Regular Control | O.M. of G.R.I. P.N.S. Control | O.M. of E.R.I. Regular Control | O.M. of E.R.I. P.N.S. Control |
|---|---|---|---|---|
| 2 | 7 | 18 | 1 | 22 |
| 3 (2) | 10 | 24 | 3 | 27 |
| 7 | 18 | 27 | 6 | 30 |
| 10 | 24 | 43(2) | 7 | 32 (2) |
| 12 | 31 | 57 | 12 | 37 |
| 14 (2) | 40 | 60 | 14 (2) | 43 |
| 18 | 43 | 65 | 18 | 49 |
| 26 | 49(3) | 69 | 22 | 60 (3) |
| 27 | 74 | 72 | 32 (3) | 65 (2) |
| 37 | 92 | 79(2) | 37 | 81 |
| 43 (2) | 94 | 81 | 40 (2) | |
| 49 (2) | 95 | 85 | 49 | |
| 56 | 98 | 88 | 58 | |
| 58 | 100 | | 65 | |
| 60 | | | 69 (2) | |
| 76 (2) | | | 72 | |
| 81 | | | 74 | |
| 85 | | | 76 | |
| 92 | | | 84 | |
| 96 | | | 85 | |
| 98 | | | 88 | |
| | | | 90 | |
| | | | 91 | |
| | | | 96 | |
| | | | 100 | |
| Total No. in Group | 26 | 16 | 15 | 30 | 14 |

Table XXIV Multiple Choice Tests - September, 1958.

| Whole Test Alternative Students | Whole Test Control Students |
|---|---|
| 86.5 (2) | 84 |
| 77.5 | 81 |
| 74 | 79.5 * |
| 68.5 | 79 * |
| 67 | 73.5 * |
| 64.5 | 66.5 * |
| 59.5 | 64 * |
| 57.5 | 62.5 * |
| 56.5 (2) | 59.5 |
| 55.5 | 58.5 |
| 54 | 58.5 * |
| 53.5 (2) | 55.5 |
| 53 | 54.5 |
| 50.5 (2) | 54.5 * |
| 49.5 | 51.5 * |
| 49 | 50 |
| 47 | 49.5 * |
| 46.5 | 46.5 |
| 43.5 | 46 |
| 43 | 45 * |
| | 43 * |
| | 42.5 |
| | 42.5 * |
| | 38 * |
| | 36.5 |
| | 36 |
| | 32.5 * |
| | 27 * |
| Total No. of Marks: 150 | 150 |
| Total No. of Students: 24 | 28 |

* indicates 16 students who took the test on 5.9.58. but who do not belong to the official control group.

## Multiple Choice Tests - September, 1958

Table XXV

| Anatomy & Physiology Alternative Students | Anatomy & Physiology Control Students |
|---|---|
| Score - 30 marks | Score |
| 19.5 | 19.5 |
| 17 (4) | 19.5 ✱ |
| 16 (2) | 18.5 |
| 14.5 | 17 ✱ |
| 14 | 16 (2) ✱ |
| 13.5 (3) | 15.5 |
| 12.5 | 15.5 ✱ |
| 12 (4) | 14.5 |
| 11 | 14.5 (2)✱ |
| 10.5 | 14 |
| 10 | 13.5 |
| 8.5 (2) | 13.5 ✱ |
| 7 | 13 |
| 6 | 12.5 (2) |
| | 12 ✱ |
| | 10.5 |
| | 10.5 ✱ |
| | 10 |
| | 9.5 |
| | 9.5 (2)✱ |
| | 9 ✱ |
| | 7.5 (2)✱ |
| | 6.5 ✱ |
| Total No. in group 24 | 28 |

Table XXVI

| Medicine & Surgery Alternative Students | Medicine & Surgery Control Students |
|---|---|
| Score - 40 marks | Score |
| 27 | 20.5 ✱ |
| 24 | 18.5 |
| 21 | 17 ✱ |
| 18.5 | 16.5 ✱ |
| 17 | 16 |
| 16 | 16 * |
| 15.5 (2) | 15.5 ✱ |
| 14.5 | 14.5 |
| 12 | 14 |
| 11.5 (2) | 13.5 ✱ |
| 10.5 | 11 ✱ |
| 10 | 10.5 ✱ |
| 9 | 10 |
| 7 | 9.5 (2) |
| 6.5 (2) | 8.5 |
| 5 (4) | 7 |
| 3 | 6 (3) * |
| 2 | 5 (3) ✱ |
| | 4 |
| | 4 ✱ |
| | 3.5 |
| | 2 ✱ |
| | 2 |
| Total No. in group 24 | 28 |

✱ Indicates 16 Students who took the test on 5. 9.58 but who did not belong to the official control group.

Table XXVII

Multiple Choice Tests - September, 1958

| Pharmacology | Pharmacology | |
|---|---|---|
| Alternative Students | Control Students | |
| Score (25 marks) | Score | |
| 15 | 13.5 | |
| 13 | 13 | |
| 12.5 (2) | 11 * | |
| 11.5 | 10.5 | |
| 9 | 10.5 * | |
| 8.5 | 10 | |
| 8 | 9.5 | |
| 7 (2) | 9.5 * | |
| 6.5 | 9 (2) | |
| 5.5 (2) | 9 * | |
| 5 (8) | 8 (2) | |
| 4 (2) | 8 (2) * | |
| 3 | 7.5 * | |
| | 6 * | |
| | 5.5 * | |
| | 5 | |
| | 5 (2) * | |
| | 4.5 * | |
| | 3 | |
| | 3 (2) * | |
| | 2 | |
| | 2 * | |
| | 1 * | |
| 24 | 28 | Total No. of Students |

* Indicates 16 students who took the test on 5.9.58 but who do not belong to the official control group.

Table XXVIII

Multiple Choice Tests - September, 1958

| Administration of Drugs | Administration of Drugs |
|---|---|
| Alternative Students | Control Students |
| Score (20 Marks) | Score |
| 14 | 12 |
| 12.5 | 11 (2) * |
| 11 | 8.5 * |
| 9.5 | 8 (2) |
| 8.5 | 7 (3) |
| 8 (3) | 7 (2) * |
| 7.5 (2) | 6.5 * |
| 7 | 6 (4) |
| 6.5 (2) | 6 (3) * |
| 5.5 | 5 * |
| 5 | 4.5 |
| 4 | 4 * |
| 3.5 | 2.5 * |
| 2 (3) | 2 |
| 1.5 (2) | 2 (2) * |
| 1 | 1.5 * |
| .5 | 1 * |
| 24 | 28 |

Total No.

* Indicates 16 students who took the test on 5.9.58 but who do not belong to the official control group.

## Multiple Choice Tests - September, 1958.

Table XXIX

| Bacteriology Alternatives | Bacteriology Controls |
|---|---|
| Score 12 Marks | Score |
| 9 (5) | 11 * |
| 8 (4) | 9 |
| 7 (7) | 9 (5)* |
| 6 (2) | 8 (2) |
| 5 | 8 (2)* |
| 4 | 7 * |
| 3 | 6 |
| 2 (2) | 6 (5)* |
| 0 | 5 (4) |
| | 5 (2)* |
| | 4 (2) |
| | 2 |
| | 0 |
| 24 | 28 Total No. in Group |

Table XXX

| Gynaecology Alternative | Gynaecology Controls | |
|---|---|---|
| Score 6 Marks | Score | |
| 6 (6) | 6 (2) | |
| 5 (8) | 6 * | |
| 4 (5) | 5 | |
| 3 | 5 (3) * | |
| 2 (2) | 4 (6) | |
| 1 | 4 (5) * | |
| | 3 | |
| 0 | 3 (4) * | |
| | 0 (2) | |
| | 0 (3) * | |
| 24 | 28 | Total No in Group |

* Indicates all students who took test on 5.9.58 but who did not belong to the official control group.

Table XXXI Multiple Choice Test - September, 1958.

| Health and Nutrition | Health and Nutrition | |
|---|---|---|
| Alternative | Control | |
| Score (17 Marks) | Score | |
| 14.5 (2) | 14 (2) * | |
| 14 (2) | 13.5 | |
| 13.5 | 13 (2) * | |
| 12.5 | 12 * | |
| 11 (2) | 11 | |
| 10.5 (2) | 11 * | |
| 10 | 10.5 | |
| 9.5 | 9.5 (2) * | |
| 9 (4) | 9 | |
| 8.5 (2) | 9 (2) * | |
| 8 | 8.5 | |
| 7.5 (3) | 8.5 * | |
| 7 | 8 | |
| 5 | 8 (2) * | |
| | 7 * | |
| | 6 | |
| | 6 * | |
| | 5 | |
| | 4.5 | |
| | 4 (2) | |
| | 1 | |
| | 0 * | |
| 24 | 28 | Total No. in Group |

* Indicates 16 students who took test on 5.9.58 but who did not belong to the official control group.

Table XXXll Multiple Choice Tests - 1959

| Whole Test Alternative Students | Whole Test Control Students |
|---|---|
| 95 | 92 |
| 89.5 (2) | 89 |
| 87.5 | 87 |
| 85.5 | 81 |
| 80 | 80.5 |
| 79.5 | 77.5 |
| 76.5 (2) | 77 |
| 72.5 | 75 |
| 71.5 | 73.5 (2) |
| 70.5 | 73 |
| 70 | 72 |
| 68 (2) | 69 |
| 67.5 | 68.5 (3) |
| 67 | 68 |
| 66.5 | 67 |
| 64.5 | 64.5 |
| 63.5 | 62.5 |
| 59 | 61 |
| 56.5 | 59 |
| 54 | 57 |
| 53.5 | 56 |
| 48.5 | 54.5 |
| 47 | 53.5 |
| | 51.5 |
| | 51 |
| | 45.5 |
| | 43.5 |
| | 41 |
| Total No. Students: 26 | 31 |
| Total No. Marks: 150 | 150 |

## Multiple Choice Tests - September, 1959

Table XXXlll

| Anatomy & Physiology | Anatomy & Physiology |
|---|---|
| Alternative | Control |
| Score - (40 marks) | Score |
| 28 (2) | |
| 27 | 22.5 |
| 24 | 21.5 (2) |
| 23.5 | |
| 21.5 (2) | |
| 21 (2) | 19.5 |
| 20.5 | 19 |
| 19 | |
| 17.5 (2) | 18 (2) |
| 17 (2) | 17 (2) |
| 16.5 (2) | 16.5 (2) |
| 16 | 16 (2) |
| 14.5 | 15.5 (2) |
| 14 (2) | |
| 12.5 (3) | 15 |
| 9.5 | |
| 8 | 14 (2) |
| | 13.5 |
| | 13 |
| | 12.5 |
| | 12 |
| | 11.5 |
| | 11 |
| | 10.5 (2) |
| | 10 (2) |
| | 9.5 |
| | 8.5 |
| | 7.5 |
| Total No. in Group | 26 | 31 |

Table XXXlV

| Medicine & Surgery | Medicine & Surgery |
|---|---|
| Alternative | Control |
| Score - 44 marks | Score |
| 28 | |
| 26.5 (3) | 31 |
| 25.5 (2) | 29.5 |
| 25 | 29 |
| 24 | 28.5 |
| 23.5 (2) | 27.5 (2) |
| 22.5 (2) | 27 |
| 22 (2) | |
| 20.5 (2) | |
| 20 (3) | 25.5 (2) |
| 19.5 (2) | |
| 17.5 (2) | 24.5 (2) |
| 16.5 | |
| 14.5 | 24 |
| 12 | 23.5 (2) |
| | 22.5 |
| | 22 |
| | 21.5 (3) |
| | 21 (3) |
| | 20 |
| | 19 |
| | 18.5 (2) |
| | 18 |
| | 17.5 (3) |
| | 16 |
| Total No. in Group | 26 | 31 |

## Multiple Choice Test - 1959

Table XXXV

| Pharmacology Alternative Students | Pharmacology Control Students | |
|---|---|---|
| Score (15 Marks) | Score | |
| 9 (4) | 12.5 | |
| 8.5 | 11 | |
| 8 | 9.5 | |
| 7.5 (2) | 8.5 (2) | |
| 6.5 | 7.5 | |
| 6 | 7 (3) | |
| 5.5 (2) | 6.5 (3) | |
| 5 (4) | 6 (6) | |
| 4.5 (4) | 5.5 (2) | |
| 4 (2) | 5 | |
| 3.5 | 4.5 (4) | |
| 3 | 4 (2) | |
| 2.5 | 3.5 (2) | |
| 1.5 | 3 | |
| | 2.5 | |
| 26 | 31 | Total No. in Group |

Table XXXVI

| Administration Drugs Alternative Students | Administration Drugs Control Students | |
|---|---|---|
| Score (15 Marks) | Score | |
| 15 | 15 (3) | |
| 14 (2) | 11 (8) | |
| 11 (7) | 10 | |
| 10 (2) | 8 | |
| 9 | 7 (4) | |
| 7 (6) | 6 (3) | |
| 6 | 5 | |
| 4 | 3 (7) | |
| 3 (4) | 2 (2) | |
| 1 | 1 | |
| 26 | 31 | Total No. in Group |

## Multiple Choice Tests - September, 1959.

Table XXXVII

| Bacteriology Alternatives | Bacteriology Controls |
|---|---|
| Score (10 Marks) | Score |
| 10 (9) | 10 (2) |
| 8 (4) | |
| 7 (2) | 9 |
| 6 (5) | |
| 5 (3) | 8 (7) |
| 4 | |
| 3 (2) | 7 (9) |
| | 6 (3) |
| - | 5 (4) |
| | 4 (2) |
| | 3 (3) |
| 26 | 31 |

Total No. in Group

Table XXXVIII

| Gynaecology Alternatives | Gynaecology Controls. | |
|---|---|---|
| (Score 6 Marks) | Score | |
| 5 (4) | 5 (2) | |
| 4 (3) | | |
| 3 (9) | 4 (9) | |
| 2 (6) | | |
| 1 (3) | 3 (8) | |
| 0 | | |
| | 2 (7) | |
| | 1 (4) | |
| | 0 | |
| 26 | 31 | Total No. in Group |

Multiple Choice Tests - September, 1959.

Table XXXIX

| Health and Nutrition Alternatives | Health and Nutrition Controls | |
|---|---|---|
| Score (20 Marks) | Score | |
| 10.5 | | |
| 9.5 (2) | 15 | |
| 9 (2) | | |
| 8.5 (4) | | |
| 8 (2) | 11.5 | |
| 7.5 (2) | 11 | |
| 7 (2) | | |
| 6 (2) | 9.5 | |
| 5.5 (2) | 9 | |
| 5 (2) | | |
| 4.5 (2) | 8.5 | |
| 4 | | |
| 3.5 | 7.5 | |
| 3 | | |
| | 7 (4) | |
| | 6.5 (3) | |
| | 6 (5) | |
| | 5.5 (2) | |
| | 5 (2) | |
| | 4.5 (2) | |
| | 4 (2) | |
| | 3.5 (2) | |
| | 3 | |
| | 2.5 | |
| 26 | 31 | Total No. in Group. |

**Table XL**

Marks achieved by Student Nurses in the Ward Practical Tests in August 1958.

| Preparation of Equipment | | Procedure & Method | | Performance in Viva-Voce | | Total Results Ward Practical | |
|---|---|---|---|---|---|---|---|
| 20 Marks | | 20 Marks | | 10 Marks | | 50 Marks | |
| Alternative | Control | Alternative | Control | Alternative | Control | Alternative | Control |
| 17 (2) | 21 ✱ | 17 (4) | 19 | 9 | 9 | 40 (2) | 44 |
| 16 | 18 ✱ | 16 (2) | 18 | 8 (7) | 9 ✱ | 39 | 44 ✱ |
| 15 (2) | 17 (3) | 15 (4) | 17 (2) | 7 (5) | 8 (6) | 38 | 43 |
| 14 (4) | 16 (2) | 14 (6) | 17 ✱ | 6 (5) | 8(2)✱ | 37 (3) | 41 |
| 13 (4) | 15 | 13 (3) | 16 (3) | 5 (4) | 7 (7) | 35 (2) | 40 |
| 12 (4) | 15 ✱ | 12 (2) | 16 ✱ | 4 (2) | 6 | 34 | 39 |
| 11 (3) | 14 (5) | 10 (2) | 15 | | 4 (4) | 32 (2) | 39 ✱ |
| 10 (3) | 13 | 8 | 14 (2) | | 4(2)✱ | 32 (5) | 38 (2) |
| 7 | 11 | | 13 (5) | | | 31 (3) | 36 |
| | 10 | | 11 | | | 30 (2) | 35 |
| | 9 | | 11 ✱ | | | 28 | 34 (2) |
| | 9 ✱ | | 9 ✱ | | | 20 | 32 |
| | 8 (2) | | 8 (2) | | | | 31 |
| | 7 (2) | | 7 | | | | 31 ✱ |
| | 7 ✱ | | 7 ✱ | | | | 29 |
| | | | | | | | 28 (2) |
| | | | | | | | 22 |
| | | | | | | | 22 ✱ |
| | | | | | | | 20 |
| | | | | | | | 18 |
| | | | | | | | 18 ✱ |
| Total No. in Group 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

✱ Indicates 5 Students who took this test but who did not belong to the official control group.

Table XLI

Marks achieved by Student Nurses in the Ward Practical Tests in August, 1959

| | Preparation of Equipment | | Procedure & Method | | Performance in Viva-Voce | | Total Results Ward Practical | |
|---|---|---|---|---|---|---|---|---|
| | 20 Marks | | 20 Marks | | 10 Marks | | 50 Marks | |
| | Alternative | Control | Alternative | Control | Alternative | Control | Alternative | Control |
| | 18 | 17 (4) | 18 | 17 (2) | 16 | 9 (2) | 44 | 42 |
| | 17 | 16 (2) | 17 (3) | 16 (2) | 9 (2) | 8 (8) | 43 | 41 |
| | 16 | 15 (3) | 16 (3) | 15 (4) | 8 (5) | 7 (5) | 41 | 40 |
| | 15 (4) | 14 (3) | 15 (4) | 14 (9) | 7 (2) | 6 (4) | 38 | 38 (3) |
| | 14 (8) | 13 (3) | 14 (6) | 13 | 6 (9) | 5 (3) | 37 (2) | 37 (2) |
| | 13 (3) | 12 (6) | 13 (2) | 12 (4) | 5 (2) | 4 (3) | 36 (3) | 36 (2) |
| | 12 | 11 | 12 | 11 (3) | 4 (5) | 3 | 35 (4) | 35 |
| | 11 (3) | 9 (2) | 11 (2) | 8 | | | 34 (2) | 34 (3) |
| | 10 (2) | 8 | 10 (3) | | | | 33 | 33 |
| | 8 | 6 | 6 | | | | 32 (2) | 32 (3) |
| | 5 | | | | | | 30 | 30 (3) |
| | | | | | | | 29 (2) | 28 (2) |
| | | | | | | | 28 | 26 |
| | | | | | | | 25 (2) | 25 |
| | | | | | | | 20 (2) | 20 |
| Total No. in Group | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

TABLE XLII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during December, 1958

Ward Administration

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 15 (2) | 18 (4) | 16 | 18 (4) |
| | 14 (6) | 17 (2) | 14 (6) | 16 (4) |
| | 12 (4) | 16 (3) | 13 | 15 (3) |
| | 10 | 15 (3) | 12 (4) | 14 (4) |
| | 8 | 14 (4) | 10 (2) | 12 (3) |
| | 5 | 12 (2) | 8 | 8 |
| | 2 | 10 | 3 | 5 |
| | | 8 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 16 | 20 | 16 | 20 |
| No. of Students In group | 24 | 24 | 24 | 24 |

TABLE XLIII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during December, 1960

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 19 | 18 | 18 (7) |
| | 17 (2) | 18 (9) | 16 (2) | 17 (3) |
| | 16 (2) | 17 (2) | 15 (3) | 16 (4) |
| | 15 (6) | 16 | 14 (5) | 15 (2) |
| | 14 (8) | 15 (2) | 13 | 14 |
| | 13 | 14 (3) | 12 (6) | 13 (2) |
| | 12 (3) | 13 | 10 (3) | 12 (2) |
| | 8 | 12 (4) | 8 (2) | 10 (2) |
| | 8 (2) | 10 | 7 | 8 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 24 | 24 | 24 | 24 |
| No. of Students In group | 24 | 24 | 24 | 24 |

TABLE XLIV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during December, 1958.

Care of Patients

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 19 | 19 (2) | 18 | 18 (7) |
| | 18 (2) | 18 (4) | 16 (2) | 17 (2) |
| | 17 (3) | 17 (4) | 15 (5) | 16 (5) |
| | 16 | 16 (4) | 14 (4) | 15 |
| | 15 (3) | 15 | 12 (5) | 14 (3) |
| | 14 (7) | 14 (4) | 10 (2) | 12 (3) |
| | 13 | 12 | 8 (2) | 8 |
| | 12 | 10 (2) | 7 | |
| | 10 | | 5 | |
| | 6 | | | |
| | 4 | | | |
| | 2 | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 23 | 22 | 23 | 22 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE XLV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during December, 1958.

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 18 | 12 (6) | 18 (2) |
| | 16 (2) | 17 (2) | 10 (7) | 16 |
| | 15 (3) | 16 (3) | 8 | 15 (3) |
| | 14 | 15 (5) | 5 | 14 (2) |
| | 12 (2) | 14 (2) | 0 (2) | 13 |
| | 10 (4) | 12 (3) | | 12 (5) |
| | 8 | 10 | | 10 (4) |
| | 5 | 8 (2) | | 8 |
| | 2 (2) | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 17 | 19 | 17 | 19 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE XLVI

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during December, 1958.

Team Leadership

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 17 (2) | 18 (4) | 16 | 18 (6) |
| | 16 | 17 (4) | 15 (2) | 16 (4) |
| | 15 (3) | 16 (5) | 14 | 15 (2) |
| | 14 (3) | 15 | 13 (2) | 14 (6) |
| | 13 | 14 (3) | 12 (4) | 10 |
| | 12 (2) | 12 (2) | 10 (3) | 8 (2) |
| | 10 (2) | 10 (2) | 8 (3) | 5 |
| | 8 (2) | 8 | 4 | |
| | 5 | | 0 (2) | |
| | 4 | | | |
| | 2 | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 19 | 22 | 19 | 22 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE XLVII

Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during March, 1959.

Ward Administration

| Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|
| 17 | 19 | 18 | 19 |
| 16 (2) | 18 (6) | 17 (3) | 18 (4) |
| 15 (4) | 17 (3) | 16 (4) | 17 (2) |
| 14 (4) | 16 (4) | 15 (2) | 16 (4) |
| 12 (2) | 15 | 14 (2) | 15 (7) |
| 11 | 14 (6) | 13 | 14 |
| 10 (5) | 13 | 12 | 11 |
| 8 | | 11 | 4 (2) |
| 5 | | 10 (4) | |
| | | 6 | |
| | | 3 | |
| | | | |
| | | | |
| | | | |
| No. of occasions Mark awarded: 21 | 22 | 21 | 22 |
| No. of Students In group: 24 | 24 | 24 | 24 |

TABLE XLVIII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during March, 1959.

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 19 | 18 | 19 |
| | 17 | 18 (3) | 17 (2) | 17 (6) |
| | 16 (2) | 17 (3) | 16 (3) | 16 |
| | 15 (4) | 16 (7) | 15 (4) | 15 (8) |
| | 14 (3) | 15 | 14 (4) | 14 (4) |
| | 13 | 14 (5) | 13 (2) | 12 (2) |
| | 12 (4) | 13 | 10 (3) | 10 |
| | 8 (3) | 12 | 8 (2) | |
| | 7 | 8 | 5 | |
| | 6 | | 2 | |
| | 5 | | | |
| | 3 | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 23 | 23 | 23 | 23 |
| No. of Students in group | 24 | 24 | 24 | 24 |

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during March, 1959.

Care of Patients

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (2) | 18 (6) | 18 | 18 (2) |
| | 16 | 17 (3) | 17 | 17 (3) |
| | 15 (2) | 16 (7) | 16 (3) | 16 (4) |
| | 14 (5) | 15 | 15 (4) | 15 (7) |
| | 13 | 14 (2) | 14 (5) | 14 (4) |
| | 12 | 12 | 13 | 12 |
| | 10 (5) | 10 (2) | 10 (4) | 9 |
| | 8 | | 6 | |
| | 6 | | 4 | |
| | 5 | | 2 | |
| | 0 | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 22 | 22 | 22 | 22 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE L



Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during March, 1959

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 19 | 17 | 18 (2) |
| | 14 (5) | 17 (2) | 14 (5) | 16 (3) |
| | 12 (3) | 16 (3) | 12 (3) | 15 (5) |
| | 10 (3) | 15 (4) | 10 (5) | 14 (2) |
| | 8 (2) | 14 (2) | 8 | 13 (2) |
| | 5 | 13 (2) | 0 (5) | 12 (3) |
| | 0 (5) | 12 (2) | | 10 |
| | | 10 (2) | | 0 |
| | | 0 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 20 | 19 | 20 | 19 |
| No. of Students In group | 24 | 24 | 24 | 24 |

TABLE LI



Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during March, 1959

Team Leadership

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 19 | 17 (3) | 19 |
| | 17 | 18 (6) | 16 (3) | 18 (3) |
| | 16 (2) | 17 | 15 | 16 (7) |
| | 15 (3) | 16 (5) | 14 (4) | 15 (4) |
| | 13 | 15 | 12 (5) | 14 |
| | 12 (2) | 14 | 10 (2) | 12 |
| | 10 (5) | 13 | 8 | 6 |
| | 8 (2) | 12 | 6 | |
| | 6 | 10 | 4 (2) | |
| | 5 (2) | | | |
| | 4 | | | |
| | 0 | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 22 | 18 | 22 | 18 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1959.

**Ward Administration**

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (3) | 18 (3) | 18 | 18 (3) |
| | 17 (3) | 17 (4) | 17 | 17 (2) |
| | 16 (3) | 16 (5) | 16 (6) | 16 (4) |
| | 15 | 14 (4) | 15 (3) | 15 |
| | 14 (5) | 13 (2) | 14 | 14 (4) |
| | 13 | 12 | 12 (4) | 12 (4) |
| | 10 | 10 (3) | 10 | 10 (5) |
| | 8 | 7 | 9 | |
| | 5 (2) | | 8 | |
| | 4 (2) | | 7 | |
| | 3 | | 5 | |
| | | | 4 | |
| | | | 2 | |
| | | | | |
| No. of occasions Mark awarded | 23 | 23 | 23 | 23 |
| No. of Students in group | 24 | 24 | 24 | 24 |

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1959.

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (2) | 18 | 16 (2) | 18 |
| | 17 (2) | 17 (6) | 15 (2) | 17 |
| | 16 (3) | 16 (5) | 14 (6) | 16 (3) |
| | 15 (5) | 15 (4) | 12 (3) | 15 (3) |
| | 14 (2) | 14 (4) | 10 (3) | 14 (6) |
| | 13 | 12 | 9 | 13 |
| | 12 (2) | 11 | 8 (2) | 12 (6) |
| | 10 | 10 | 7 | 10 (2) |
| | 8 | 8 | 5 (2) | 9 |
| | 6 | | 4 | |
| | 5 | | 3 | |
| | 4 (3) | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 24 | 24 | 24 | 24 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LIV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1959.

Care of Patients

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (2) | 18 | 18 | 18 (2) |
| | 17 (3) | 17 (2) | 17 | 17 |
| | 16 (3) | 16 (4) | 16 | 16 (3) |
| | 15 (2) | 15 (6) | 15 (2) | 15 (2) |
| | 14 (5) | 14 (7) | 14 (6) | 14 (10) |
| | 13 | 12 (2) | 12 (3) | 13 |
| | 12 | 10 | 10 (3) | 12 (3) |
| | 10 (3) | 9 | 9 | 11 |
| | 8 | | 8 | 10 |
| | 7 | | 7 (2) | |
| | 5 (2) | | 4 | |
| | | | 3 | |
| | | | 2 | |
| | | | | |
| No. of occasions Mark awarded | 24 | 24 | 24 | 24 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1959.

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (2) | 17 | 16 | 17 (2) |
| | 17 (3) | 16 (2) | 14 (2) | 15 |
| | 16 (3) | 15 | 13 | 14 (3) |
| | 15 (4) | 14 (5) | 12 (4) | 12 |
| | 14 | 13 (3) | 11 | 10 (5) |
| | 10 (2) | 12 (2) | 10 (3) | 9 (3) |
| | 8 (3) | 10 (3) | 8 (2) | 8 (4) |
| | 5 | 9 | 7 (2) | 5 |
| | 4 (3) | 5 | 6 | |
| | 3 | 3 | 5 | |
| | 0 | | 4 (2) | |
| | | | 3 (2) | |
| | | | 0 (2) | |
| | | | | |
| No. of occasions Mark awarded | 24 | 20 | 24 | 20 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LVI

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1959.

Team Leadership

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (3) | 18 | 16 (2) | 18 (2) |
| | 17 (4) | 17 (7) | 15 (3) | 17 |
| | 16 (4) | 16 (2) | 14 (3) | 16 (3) |
| | 15 | 15 (4) | 13 (2) | 15 (3) |
| | 14 (2) | 14 (3) | 12 (4) | 14 (5) |
| | 12 | 13 (2) | 11 | 13 (3) |
| | 11 | 12 (2) | 10 (2) | 12 (2) |
| | 10 (3) | 8 | 8 (2) | 10 (4) |
| | 8 | 5 | 5 (2) | |
| | 5 | | 4 | |
| | 4 | | 3 (2) | |
| | 2 | | | |
| | 0 | | | |
| | | | | |
| No. of occasions Mark awarded | 24 | 23 | 24 | 23 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LVII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during November, 1959.

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 14 (3) | | 17 | |
| | 12 (5) | | 16 | |
| | 10 (2) | | 15 | |
| | 8 | | 14 | |
| | 7 | | 12 (4) | |
| | 4 | | 10 (2) | |
| | | | 8 | |
| | | | 5 | |
| | | | 2 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 13 | | 13 | |
| No. of Students in group | 13 | | 13 | |

TABLE LVIII



Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during November, 1959.

Care of Patients

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 14 (2) | | 16 (2) | |
| | 12 (7) | | 15 (3) | |
| | 10 (2) | | 14 (4) | |
| | 8 | | 13 | |
| | 4 | | 12 | |
| | | | 10 | |
| | | | 8 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 13 | | 13 | |
| No. of Students In group | 13 | | 13 | |

TABLE LIX



Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during November, 1959

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 12 | | 7 (2) | |
| | 10 | | 6 (2) | |
| | 8 (2) | | 5 | |
| | 6 (5) | | 4 | |
| | 5 | | 3 (2) | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 8 | | 8 | |
| No. of Students in group | 13 | | 13 | |

TABLE LX



Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during February, March, 1960

Ward Administration

| Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|
| 19 | 18 | 17 (3) | 18 (2) |
| 18 | 17 (2) | 16 (3) | 17 (3) |
| 17 | 16 (6) | 15 (3) | 16 (5) |
| 16 (2) | 15 (5) | 14 | 15 (3) |
| 15 (2) | 14 (2) | 13 | 14 (5) |
| 14 (3) | 10 (2) | 12 (3) | 10 |
| 13 (3) | 7 | 10 (4) | |
| 12 (3) | | 8 | |
| 11 | | 7 | |
| 10 (2) | | | |
| 4 | | | |
| | | | |
| | | | |
| | | | |
| No. of occasions Mark awarded: 20 | 19 | 20 | 19 |
| No. of Students In group: 26 | 26 | 26 | 26 |

TABLE LXI



Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during February & March, 1960.

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 (2) | 17 (3) | 16 (3) | 18 |
| | 17 | 16 (3) | 15 (6) | 17 |
| | 16 (2) | 15 (3) | 14 (2) | 16 (3) |
| | 15 (4) | 14 (6) | 12 (2) | 15 |
| | 14 (4) | 13 | 11 | 14 (5) |
| | 13 | 12 | 10 (5) | 13 (3) |
| | 12 | 10 (3) | 9 | 12 (2) |
| | 11 | | 8 (2) | 11 |
| | 10 (2) | | 7 | 10 (3) |
| | 8 | | | |
| | 7 | | | |
| | 5 (2) | | | |
| | 3 | | | |
| | | | | |
| No. of occasions Mark awarded | 25 | 20 | 25 | 20 |
| No. of Students in group | 26 | 26 | 26 | 26 |

Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during February & March, 1960.

Care of Patients

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 20 | 17 (2) | 18 (5) | 18 |
| | 19 | 16 (8) | 15 (3) | 17 |
| | 17 (2) | 15 (4) | 14 (2) | 16 (4) |
| | 16 | 14 (2) | 13 | 15 (5) |
| | 15 (2) | 13 | 12 | 14 (4) |
| | 14 (4) | 12 | 11 | 12 (3) |
| | 13 (2) | 10 | 10 (5) | 10 (2) |
| | 12 (3) | 7 | 8 | 7 |
| | 10 | 5 | | |
| | 7 | | | |
| | 5 | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 19 | 21 | 19 | 21 |
| No. of Students In group | 26 | 26 | 26 | 26 |

TABLES LXIII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during February & March, 1960.

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 18 | 16 (2) | 15 (2) | 16 (3) |
| | 17 | 15 (5) | 14 (3) | 15 |
| | 15 | 14 (4) | 13 | 14 |
| | 14 (2) | 13 | 12 | 12 (8) |
| | 13 (3) | 12 | 11 (2) | 11 (2) |
| | 12 | 11 | 10 (5) | 10 (4) |
| | 10 | 10 (3) | 8 (2) | 7 |
| | 7 (3) | 8 (2) | 7 | |
| | 5 (3) | 5 | | |
| | 4 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 17 | 20 | 17 | 20 |
| No. of Students in group | 26 | 26 | 26 | 26 |

TABLE LXIV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during February, March, 1960.

Team Leadership

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 19 | 19 (2) | 17 (2) | 19 (2) |
| | 18 | 17 (2) | 15 (6) | 17 (2) |
| | 17 | 16 (3) | 14 (2) | 16 (2) |
| | 16 (2) | 15 (4) | 13 | 15 (7) |
| | 15 | 14 (3) | 12 (2) | 14 (6) |
| | 14 (3) | 13 | 10 (2) | 10 (2) |
| | 13 | 9 (2) | 9 (2) | |
| | 10 (3) | 8 | 8 | |
| | 9 | 5 | 7 | |
| | 8 | | | |
| | 7 | | | |
| | 5 (2) | | | |
| | 4 | | | |
| | | | | |
| No. of occasions Mark awarded | 19 | 21 | 19 | 21 |
| No. of Students in group | 26 | 26 | 26 | 26 |

TABLE LXV

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1960

Ward Administration

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 17 | 17 (2) | 16 (2) | 17 (2) |
| | 16 (2) | 16 (3) | 15 (2) | 16 |
| | 15 (6) | 15 (3) | 14 (3) | 15 (4) |
| | 14 (2) | 14 (3) | 13 | 14 (3) |
| | 12 | 13 | 12 (2) | 12 (3) |
| | 10 (2) | 10 | 10 (3) | |
| | 8 | | 9 | |
| | 4 | | 8 (2) | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 16 | 15 | 16 | 15 |
| No. of Students in group | 26 | 26 | 26 | 26 |

TABLE LXVI

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1950

Method & Technique

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 17 | 18 | 17 | 18 |
| | 16 (2) | 17 (2) | 15 (4) | 16 (4) |
| | 15 (4) | 16 (2) | 14 (4) | 15 (3) |
| | 14 (6) | 15 (8) | 13 (2) | 14 (5) |
| | 13 | 14 (7) | 12 (2) | 13 (2) |
| | 12 (3) | 12 (2) | 10 (5) | 12 |
| | 11 | 10 | 9 | 11 |
| | 10 | | 8(3) | 10 (3) |
| | 8 | | | 9 |
| | 4 (2) | | | 6 (2) |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 22 | 23 | 22 | 23 |
| No. of Students in group | 26 | 26 | 26 | 26 |

TABLE XLVII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during March, 1959.

Ward Administration

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 17 | 19 | 18 | 19 |
| | 16 (2) | 18 (6) | 17 (3) | 18 (4) |
| | 15 (4) | 17 (3) | 16 (4) | 17 (2) |
| | 14 (4) | 16 (4) | 15 (2) | 16 (4) |
| | 12 (2) | 15 | 14 (3) | 15 (7) |
| | 11 | 14 (6) | 13 | 14 |
| | 10 (5) | 13 | 12 | 11 |
| | 8 | | 11 | 4 (2) |
| | 5 | | 10 (4) | |
| | | | 6 | |
| | | | 3 | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 21 | 22 | 21 | 22 |
| No. of Students in group | 24 | 24 | 24 | 24 |

TABLE LXVIII

Marks achieved by Alternative & Control Nurses in Ward Observation Sessions carried out during August, 1960.

Supervision of Students

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 16 (2) | 17 | 16 | 14 (3) |
| | 15 (3) | 15 (3) | 15 | 13 (3) |
| | 14 | 14 | 14 (2) | 12 (3) |
| | 13 | 13 (3) | 13 | 10 (5) |
| | 12 (3) | 12 (3) | 12 (5) | 8 |
| | 10 (3) | 11 | 11 | |
| | 9 | 10 (3) | 10 | |
| | 6 | | 9 | |
| | 4 (2) | | 8 | |
| | | | 7 | |
| | | | 6 | |
| | | | 5 | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 17 | 15 | 17 | 15 |
| No. of Students in group | 26 | 26 | 26 | 26 |

Marks achieved by Alternative & Control Nurses In Ward Observation Sessions carried out during August, 1960.

Team Leadership

| | Marks awarded to Alternatives by External Observers | Marks awarded to Controls by External Observers | Marks awarded to Alternatives by Internal Observers | Marks awarded to Controls by Internal Observers |
|---|---|---|---|---|
| | 17 | 17 | 16 (2) | 18 (2) |
| | 16 (3) | 16 (3) | 15 (3) | 16 |
| | 15 (3) | 15 (3) | 14 (3) | 15 (4) |
| | 14 (2) | 14 (5) | 13 | 14 (3) |
| | 13 | 12 (2) | 12 (4) | 13 |
| | 12 (3) | 11 | 10 (2) | 12 (3) |
| | 10 | 10 | 9 | 10 |
| | 9 | 8 | 5 (2) | 7 |
| | 8 (2) | | | 5 |
| | 4 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| No. of occasions Mark awarded | 18 | 17 | 18 | 17 |
| No. of Students In group | 26 | 26 | 26 | 26 |

Appendix I SECTION X

EDINBURGH UNIVERSITY
Multiple Choice Revision Test
1958

Please complete this page and then read the instructions before beginning the test.

1. Student's Full Name: (in block letters)

.....

2. Name of Training School:

.....

3. Date:

.....

INSTRUCTIONS

1. Listen carefully to the directions which will be given to you before this Test begins. When you are told to begin, answer the questions as quickly and as carefully as you can.

2. Begin at the beginning and go straight through.

3. If after trying a question you find you cannot answer it, don't lose time but go on to the next.

4. When you finish one page, go on to the next.

5. You may do any rough working at the side of the page if you wish.

6. You will have 45 minutes and you will be told the time every quarter of an hour. Do as much as you can in the time allowed. Accuracy is important, but should you finish them all in less than 45 minutes you can go over them again.

7. Make any alterations in your answers clearly.

8. Ask no questions at all.

Multiple Choice Revision Test

1. Place a cross (X) by the correct answer in each of the following sections of this question.

(a) normal blood sugar is:-

40 mgm/per 100 ml. to 80 mgm/per 100 ml. .....
80 mgm/per 100 ml. to 180 mgm/per 100 ml. .....
100 mgm/per 100 ml. to 200 mgm/per 100 ml. .....
180 mgm/per 100 ml. to 280 mgm/per 100 ml. .....

(b) normal red cell blood count in an adult is:-

1,000,000 per cub. mm. .....
2,000,000 per cub. mm. .....
4,000,000 per cub. mm. .....
5,000,000 per cub. mm. .....

(c) normal white blood count in an adult is:-

1000 - 2000 white cells per cub. mm. .....
2000 - 6000 white cells per cub. mm. .....
6000 - 10,000 white cells per cub. mm. .....
10,000 - 15,000 white cells per cub. mm. .....
15,000 - 30,000 white cells per cub. mm. .....

(d) Complete the missing word in each sentence.

An abnormally low blood sugar causes a ..... coma

An abnormally high blood sugar causes a ..... coma

A severe deficiency of haemoglobin causes .....

An abnormally high percentage of red blood cells causes .....

Table 1 contd.

Table 1 contd.

An abnormally low white blood count is called a .....
An abnormally high white blood count is called a .....

A temporary cessation of respirations is called .....
Difficult or painful breathing is called .....

2. Six of the positions listed in Column B give the correct situation of the heart structures mentioned in Column A. Indicate this relationship by picking out the correct position for each structure and placing the answer in the space provided in Column B.

EXAMPLE:- This following example has been done for you.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | bundle of His | between right curicle and right ventricle ..... | ..... |
| 2 | sino-auricular node | between right ventricle and left ventricle ..... | 1 ..... |
| | | in right auricle between inferior and superior venae cavae ..... | 2 ..... |
| | | between mitral valve and ventricles ..... | ..... |

Do all the others listed over in the same way.

Table 2 contd.

Table 2 contd.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | pulmonary semilunar valve | between myocardium and pericardium ..... | |
| 2 | right ventricle | between tricuspid valve and pulmonary artery ..... | |
| 3 | aortic semilunar | between pulmonary artery and mitral valve ..... | |
| 4 | left curicle | between right ventricle and pulmonary artery ..... | |
| 5 | tricuspid valve | | |
| 6 | endocardium | between myocardium and chambers of the heart ..... | |
| | | between right ventricle and pulmonary veins ..... | |
| | | between pulmonary veins and mitral valve ..... | |
| | | between left ventricle and pulmonary veins ..... | |
| | | between right auricle and right ventricle ..... | |
| | | between mitral valve and pulmonary artery ..... | |
| | | between left ventricle and aorta ..... | |
| | | between right auricle and left auricle ..... | |

3. Read through the following list of terms and place a cross (X) by ANY of them which are used to describe parts of the kidney.

| | |
|---|---|
| sinusoid ..... | pons varolii ..... |
| hymen ..... | diverticulum ..... |
| medulla ..... | alveoli ..... |
| capsule ..... | calyx ..... |
| papilla ..... | pelvis ..... |
| tubule ..... | villi ..... |
| hilum ..... | cortex ..... |
| diaphysis ..... | infundibulum ..... |
| capillary ..... | glomeruli ..... |

4. Each drug listed in Column A produces ONE or TWO of the reactions listed in Column B. Link up each drug with its specific reaction or reactions by placing the corresponding number or numbers in the spaces provided in Column B.

| No. | Column A | Column B | Place correct no. or nos. here. |
|---|---|---|---|
| 1 | dicoumarol | increases blood clotting time ..... | |
| 2 | heparin | | |
| 3 | vitamin K | decreases uterine contractions ..... | |
| 4 | prostigmine | | |
| 5 | ergometrine | decreases prothrombin concentration in blood ..... | |
| 6 | quinidine | raises blood pressure ..... | |
| 7 | pethidine | increases peristaliss and muscle contraction ..... | |
| 8 | hyoscine | | |
| 9 | strychnine | decreases regularity of heart beat ..... | |
| 10 | noradrenaline | stimulates central nervous system ..... | |
| | | decreases blood clotting time ..... | |
| | | lowers blood pressure ..... | |
| | | promotes uterine and bladder contractions ..... | |
| | | reduces sensitivity to pain ..... | |
| | | increases regularity of heart beat ..... | |
| | | relaxes bronchioles ..... | |
| | | depresses central nervous system ..... | |
| | | increases sensitivity to pain ..... | |
| | | increases uterine contractions ..... | |
| | | increases prothrombin level of blood ..... | |
| | | constricts bronchioles ..... | |

5. ONE of the conditions listed in Column B is specifically associated with the abnormal functioning of one of the glands listed in Column A. As in the last question, link up the appropriate disease and gland by placing the correct number in Column B.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | parathyroid | acromegaly ..... | ..... |
| 2 | anterior pituitary | hirsutism ..... | ..... |
| 3 | lymph | hydronephrosis ..... | ..... |
| 4 | adrenal medulla | Still's disease ..... | ..... |
| 5 | posterior pituitary | infectious monomucleosis ..... | ..... |
| 6 | pancreas | achondroplasia ..... | ..... |
| 7 | thyroid | mongolism ..... | ..... |
| 8 | adronal cortex | diabetes mellitus ..... | ..... |
| 9 | parotid | tetany ..... | ..... |
| | | phimosis ..... | ..... |
| | | hydrocoele ..... | ..... |
| | | myxoedema ..... | ..... |
| | | leucoplakia ..... | ..... |
| | | diabetes insipidus ..... | ..... |
| | | gingivitis ..... | ..... |
| | | Weil's disease ..... | ..... |
| | | epidemic parotitis ..... | ..... |
| | | pheochromocytoma ..... | ..... |

6. You are asked to give a patient morphine sulphate gr. 1/12 but you have only morphine sulphate 1cc. ampoules gr. $\frac{1}{8}$ in stock. Indicate:

   i. how you would calculate the correct quantity to be administered.

   ii. the number of minims you would give the patient.

Answer to i .....

Answer to ii .....

7. A deficiency of each of the items mentioned in Column A is the specific cause of <u>one</u> disease mentioned in Column B. Link up the disease mentioned in Column B with the corresponding item in Column A.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | vitamin A | coeliac disease ..... | ..... |
| 2 | vitamin $B_1$ | bronchitis ..... | ..... |
| 3 | vitamin $B_{12}$ | acidosis ..... | ..... |
| 4 | vitamin C | Addison's disease ..... | ..... |
| 5 | vitamin D | simple goitre ..... | ..... |
| 6 | vitamin K | obesity ..... | ..... |
| 7 | iodine | leukaemia ..... | ..... |
| 8 | sodium | hypochromic anaemia ..... | ..... |
| 9 | iron | chronic nephritis ..... | ..... |
| | | beri-beri ..... | ..... |
| | | angina pectoris ..... | ..... |
| | | night blindness ..... | ..... |
| | | scurvy ..... | ..... |
| | | pernicious anaemia ..... | ..... |
| | | osteomalacia ..... | ..... |
| | | haemorraghic disease of newborn ..... | ..... |
| | | obstructive jaundice ..... | ..... |

8. Each of the organisms listed in Column A commonly cause one of the illnesses mentioned in Column B. As in the last question, link up the disease in Column B with the specific organism listed in Column A.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | streptococcus viridans | acute tonsillitis ..... | ..... |
| 2 | pneumococcus | food poisoning ..... | ..... |
| 3 | spirochaete (treponema pallidum) | Parkinson's disease ... | ..... |
| 4 | haemolytic streptococcus | paratyphoid ..... | ..... |
| 5 | Friedlanders bacillus | whooping cough ..... | ..... |
| 6 | staphylococcus | sub-acute bacterial endocarditis ..... | ..... |
| 7 | bacillus Welchii | syphilis ..... | ..... |
| 8 | bacillus coliform | pyelitis ..... | ..... |
| 9 | pertussis bacillus | rheumatoid arthritis ... | ..... |
| 10 | salmonella bacillus | osteomyelitis ..... | ..... |
| 11 | brucella abortus | gas gangrene ..... | ..... |
| 12 | meningococci | poliomyelitis ..... | ..... |
| | | Weil's disease ..... | ..... |
| | | undulant fever ..... | ..... |
| | | cerebrospinal fever ... | ..... |
| | | angioneuroticoedema ... | ..... |
| | | tuberculosis ..... | ..... |
| | | ankylosing spondylitis ..... | ..... |
| | | otitis media ..... | ..... |
| | | ophthalmia in the newborn ..... | ..... |
| | | tino-sinovitis ..... | ..... |
| | | Vincent's angina ..... | ..... |

9. Read through the following list of terms and place a cross (X) by ANY of these substances which are secreted in the pancreas.

| | |
|---|---|
| maltase ..... | lactase ..... |
| steapsin (lipase) ..... | trypsinogen ..... |
| erepsin ..... | rennin ..... |
| bilirubin ..... | enterolinase ..... |
| ptyalin ..... | biliverdin ..... |
| pepsin ..... | amylase ..... |

10. In Column A eight structures of the nervous system are named. From the list given in Column B link up the function associated with each structure in Column A by placing the appropriate number in Column B.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | medulla oblongata | transmits motor impulses ..... | |
| 2 | pyramidal tract | | |
| 3 | olfactory nerve | controls body temperature ..... | |
| 4 | afferent fibres | | |
| 5 | cerebellum | controls balance ..... | |
| 6 | choroid plexus (or ventricles) | controls facial expression ..... | |
| 7 | trochlear nerve | | |
| 8 | hypothalamus | controls blood supply to brain ..... | |
| | | controls secretion of cerebrospinal fluid ..... | |
| | | controls vision ..... | |
| | | supplies eye muscles ..... | |
| | | controls secretion of ductless glands ..... | |
| | | transmit sensory impulses ..... | |
| | | sense of smell ..... | |
| | | controls sodium retention ..... | |
| | | controls respiration ..... | |
| | | controls hearing ..... | |

11. You have available soluble insulin

i) 20 units per cc.

ii) 40 units per cc.

iii) 80 units per cc.

Your patient is ordered to have 64 units of soluble insulin,

i) Underline which strength of insulin listed about you would use for the patient.

ii) State how much insulin of the strength you have selected you would withdraw into a 2 cc. syringe for injection.

Quantity of insulin required in syringe .....

12. Place a cross (X) against the correct answer in the following six sections of this question.

a) 20 grains = 1 drachm .....
40 grains = 1 drachm .....
60 grains = 1 drachm .....
80 grains = 1 drachm .....

b) 20 grams = 1 ounce ....
30 grams = 1 ounce ....
40 grams = 1 ounce ....
60 grams = 1 ounce ....

c) 5 ounces = 20 drachms .....
5 ounces = 40 drachms .....
5 ounces = 60 drachms .....
5 ounces = 80 drachms .....

d) 1 gram = 10 grains ....
1 gram = 12 grains ....
1 gram = 15 grains ....
1 gram = 20 grains ....
1 gram = 30 grains ....

e) 30 minims = 1 fluid drachm .....
40 minims = 1 fluid drachm .....
50 minims = 1 fluid drachm .....
60 minims = 1 fluid drachm .....

f) 20 cubic centimetres = 1 fluid ounce .....
30 cubic centimetres = 1 fluid ounce .....
40 cubic centimetres = 1 fluid ounce .....
60 cubic centimetres = 1 fluid ounce .....

13. Each of the following terms listed in Column A are correctly defined in Column B. Link up the corresponding term and definition by placing the correct number in Column B.

| No. | Column A | Column B | Place correct no. here |
|---|---|---|---|
| 1 | corpus luteum | removal of body of uterus and cervix ..... | ..... |
| 2 | metrostaxis | round ligaments sutured to the abdominal wall near rectus sheath ..... | ..... |
| 3 | total hysterectomy | secretes progesterone ..... | ..... |
| 4 | ventrosuspension | removal of body of uterus ..... | ..... |
| 5 | ectopic gestation | bleeding from uterus before puberty ..... | ..... |
| 6 | salpingitis | embedding of ova in Fallopian tube ..... | ..... |
| | | secretes oestrogen ..... | ..... |
| | | anterior wall of uterus is attached to posterior surface of abdominal wall ..... | |
| | | inflammation of inner lining of Fallopian tubes ..... | |
| | | bleeding from uterus unconnected with menstruation ..... | ..... |
| | | rupture of ova from Fallopian tube ..... | ..... |
| | | inflammation of fundus of uterus ..... | ..... |

14. Place a cross (X) by ANY of the following signs and symptoms you would expect to find in a patient suffering from diabetic coma.

| | |
|---|---|
| deep respirations ..... | moist skin ..... |
| anuria ..... | raised blood pressure ..... |
| hypoglycaemia ..... | high blood sugar ..... |
| shallow respirations ..... | reduced blood pressure ..... |
| sunken eyes ..... | abdominal pain and vomiting ..... |
| glycosuria ..... | ketonuria ..... |
| skin dry and inelastic .... | dry furred tongue ..... |
| low blood sugar ..... | eyes not sunken ..... |
| moist tongue ..... | no abdominal pain ..... |

15. Name the vitamin or vitamins contained in each of the following items of diet.

EXAMPLE:-

Butter contains vitamins ..... A D

Do all the others listed below in the same way.

Green vegetables contain vitamins ....

Egg yolks contain vitamins .....

Carrots contain vitamins .....

Liver contains vitamins .....

Fish liver oil contains vitamins .....

Yeast contains vitamins .....

Citrus fruits contain vitamins .....

Kidney contains vitamins .....

Nuts contain vitamins .....

Cereals contain vitamins .....

Potatoes contain vitamins .....

Cheese contains vitamins .....

Oranges contain vitamins .....

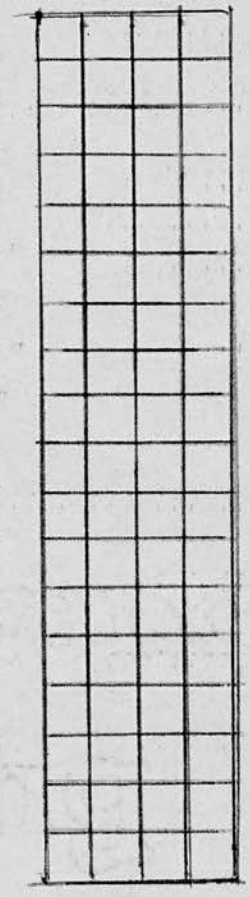
Milk contains vitamins .....

Margarine contains vitamins .....

Peanuts contain vitamins .....

Tomatoes contain vitamins .....

Bread contains vitamins .....



16. In testing catheter specimens of urine you have found the following three abnormalities listed in Column A. Indicate which abnormality you would expect to find in some of these diseases by placing the appropriate number in column provided.

| No. | Column A | Column B | Insert number below. |
|---|---|---|---|
| 1 | biliuria | acute nephritis ..... | ..... |
| 2 | haematuria | | |
| 3 | glycosuria | diabetes insipidus ..... | ..... |
| | | carcinoma of head of pancreas ..... | ..... |
| | | pyelitis ..... | ..... |
| | | aplastic anaemia ..... | ..... |
| | | uraemia ..... | ..... |
| | | diabetes mellitus ..... | ..... |
| | | hydronephrosis ..... | ..... |
| | | cholecystitis ..... | ..... |
| | | renal calculi ..... | ..... |
| | | malignant hypertension ..... | ..... |
| | | infective hepatitis ..... | ..... |
| | | chronic nephritis ..... | ..... |
| | | ulcerative colitis ..... | ..... |
| | | ketosis ..... | ..... |
| | | overdosage of dindevan ..... | ..... |

17. Select two toxic symptoms listed in Column A which can result from overdosage of each drug listed in Column B and write corresponding numbers in Column B.

| No. | Column A | Column B | Place correct nos. here | |
|---|---|---|---|---|
| 1 | dilated pupils | morphine ..... | ..... | ..... |
| 2 | pinpoint pupils | | | |
| 3 | dry, flushed skin | atropine ..... | ..... | ..... |
| 4 | profuse perspiration | | | |
| 5 | nausea and vomiting | digitalis ..... | ..... | ..... |
| 6 | dermatitis | | | |
| 7 | glycosuria | thiouracil ..... | ..... | ..... |
| 8 | shallow (rapid) respirations | | | |
| 9 | very rapid pulse | sodium salicylate ..... | ..... | ..... |
| 10 | rapid deep respirations | | | |
| 11 | bradycardia | cortisone ..... | ..... | ..... |
| 12 | leucocytosis | | | |
| 13 | raised blood pressure | quinidine ..... | ..... | ..... |
| 14 | leucopenia | | | |
| 15 | deafness | picrotoxin ..... | ..... | ..... |
| 16 | headache | | | |
| 17 | haematuria | sulphonamides ..... | ..... | ..... |
| 18 | dehydration | | | |

---

18. You have only phenol (carbolic acid) 1 in 20 solution in stock. How much of this solution would you use to prepare 3 pints of 1 in 80 solution?

Quantity of solution required .....

Quantity of water required .....

19. Place a cross (X) against the correct answer in the following five sections of this question.

(a) a diuretic is a drug which

increases perspiration .....

decreases urinary output .....

makes urine alkaline .....

increases secretion of urine .....

(b) a mydriatic is a drug which

constricts arterioles .....

induces sweating .....

dilates pupils .....

decreases vomiting .....

increases respiration .....

(c) a styptic is a drug which

controls haemorrhage .....

depresses central nervous system ....

dilates pupils .....

decreases salivary secretion .....

decreases urinary output .....

Table 19 contd.

19. (d) a carminative is a drug which

lowers body temperature.....

encourages vomiting.....

improves blood supply to intestines....

depresses parasympathetic stimuli.....

relieves gas in stomach.....

(e) an anthelmintic is a drug which.....

induces sweating.....

encourages vomiting.....

raises body temperature.....

for treatment of intestinal worms.....

stimulates peristalsis.....

20. The diseases listed in Column A occur most frequently in children or adults of a certain age and sex. Indicate the sex or sexes by placing a cross (X) in appropriate part (S) of Column B and the approximate age range in Column C.

Example:- This following example has been done for you.

| Column A. | Column B | | Column C |
|---|---|---|---|
| | M | F | Age Range |
| coronary thrombosis | X | | 40 to 60 |
| acute intussusception | X | X | 0 to 1 |

Do all the others in the same way.

| Column A | Column B | | Column C |
|---|---|---|---|
| | M | F | Age Range |
| endometrioma | | | to |
| Simple non-toxic goitre | | | to |
| Paget's disease | | | to |
| pernicious anaemia | | | to |
| acute leukaemia | | | to |
| congenital pyloric stenosis | | | to |
| trichomonas vaginitis | | | to |
| Raynaud's disease | | | to |
| coeliac disease | | | to |
| poliomyelitis | | | to |
| chorea | | | to |
| rheumatoid arthritis | | | to |
| iron deficiency anaemia | | | to |
| Parkinson's disease | | | to |
| papilloma | | | to |
| disseminated sclerosis | | | to |
| lobar pneumonia | | | to |
| tabes dorsalis | | | to |

21. You have available a 30% solution of dextrose. How much of this would you require to use to make up 500 ccs. of a 6% solution ?

Quantity of solution required .....
Quantity of water required.....

---

22. In each space provided in the following sentences one word is left out. Please write in the missing word in each space to complete this simple version of the mechanism of blood coagulation.

The substance thromboplastin is freed from injured tissues and also from .....to convert the ..... in the blood into Thrombin. This process is assisted by calcium which is normally present in the blood. The..... thus formed quickly acts on the .....to form .....(full stop)..... is a solid tough fibre network which is the actual blood clot

---

23. Place a cross (X) by ANY of the following signs and symptoms you would expect to find in a patient suffering from coronary thrombosis.

| | |
|---|---|
| raised blood pressure ..... | slow steady pulse..... |
| diarrhoea ..... | abdominal pain..... |
| vomiting..... | reduced blood pressure... |
| fast feeble pulse..... | restlessness..... |
| oliguria ..... | haemotemesis..... |
| pain lasting few seconds..... | pain lasting several hours or days..... |

24. The signs and symptoms listed in Column A are each specifically associated with one of the diseases listed in Column B. Link up the appropriate symptom with the disease by placing the right number in Column B.

| No. | Column A | Column B | Place Correct No. here |
|---|---|---|---|
| 1. | positive Paul Bunnell test | hyperchromic anaemia ..... | ..... |
| 2. | melaena | cirrhosis of liver ..... | ..... |
| 3. | raised erythrocyte sedimentation rate | haemorrhoids ... ..... | ..... |
| 4. | positive Widal reaction | | |
| 5. | obstructive jaundice | subarachnoid haemorrhage | ..... |
| 6. | opisthotonous | | |
| 7. | ascites | syphilis ..... | ..... |
| 8. | Argyll Robertson pupils | | |
| 9. | spoon-shaped nails | osteoarthritis ..... | ..... |
| 10. | papilloedema | | |
| 11. | bloodstained cerebro-spinal fluid | cerebral tumour ..... | ..... |
| 12. | glossitis | tabes dorsalis ..... | ..... |
| 13. | Koplik's spots | measles ..... | ..... |
| | | meningitis ..... | ..... |
| | | glandular fever ..... | ..... |
| | | hypochromic anaemia ..... | ..... |
| | | carcinoma of head of pancreas ..... | ..... |
| | | typhoid fever ..... | ..... |
| | | rheumatoid arthritis .... | ..... |
| | | infective hepatitis ..... | ..... |
| | | oesophageal varices ..... | ..... |
| | | disseminated sclerosis .. | ..... |

Appendix II



Edinburgh University

Multiple Choice Revision Test

1959.

Please complete this page and then read the instructions before beginning the test.

1. Student's Full Name: ( in block letters )

.....

2. Name of Training School:

.....

3. Date:

.....

INSTRUCTIONS

1. Listen carefully to the directions which will be given to you before this Test begins. When you are told to begin, answer the questions as quickly and as carefully as you can.
2. Begin at the beginning and go straight through.
3. If after trying a question you find you cannot answer it, don't lose time but go on to the next.
4. When you finish one page, go on to the next.
5. You may do any rough working at the side of the page if you wish.
6. You will have 45 minutes and you will be told the time every quarter of an hour. Do as much as you can in the time allowed. Accuracy is important, but should you finish them all in less than 45 minutes you can go over them again.
7. Make any alterations in your answers clearly.
8. Ask no questions at all.

## Multiple Choice Revision Test

1. Each of the gynaecological terms listed in Column A is correctly defined in Column B. Link up the corresponding term and its definition by placing the correct number in Column B. This Example has been done for you:

| No. | Column A | Column B | Place correct No. here |
|---|---|---|---|
| 1. | endometritis | inflammation of ovaries | |
| 2. | Salpingectomy | removal of Fallopian tube(s) | 2 |
| | | inflammation of inner lining of uterus | 1 |
| | | exploration of Fallopian tube | |

Do all the others listed below in the same way.

| No. | Column A | Column B | Place correct No. here |
|---|---|---|---|
| 1. | corpus luteum | removal of body of uterus and cervix | |
| 2. | Metrostaxis | | |
| 3. | sub-total hysterectomy | round ligaments sutured to the abdominal wall near rectus sheath | |
| 4. | ventrosuspension | | |
| 5. | ectopic gestation | secretes progesterone | |
| 6. | metrorrhagia | removal of body uterus | |
| | | bleeding from uterus before puberty and after menopause | |
| | | embedding of ova in Fallopian tube | |
| | | secretes oestrogen | |
| | | anterior wall of uterus is attached to posterior surface of abdominal wall | |
| | | excessive menstruation | |
| | | bleeding from uterus unconnected with menstruation | |
| | | rupture of ova from Fallopian tube | |
| | | scanty menstruation | |

2. List three natural foods you eat which contain the following vitamins.

Vitamin A
i) .....
ii) .....
iii) .....

Vitamin B
i) .....
ii) .....
iii) .....

Vitamin C
i) .....
ii) .....
iii) .....

Vitamin D
i) .....
ii) .....
iii) .....

3. For each disease listed in Column A select the one organism most frequently responsible for it and place the corresponding number in Column B.

| Column A | Column B | Place correct no. here |
|---|---|---|
| 1. syphilis | brucella abortus ..... | |
| 2. whooping cough | bacillus welchii ..... | |
| 3. tuberculosis | haemolytic streptococcus ..... | |
| 4. erysipelas | meningococcus ..... | |
| 5. ophthalmia neonatorum | treponema pallidum ..... | |
| 6. cerebrospinal fever | pertussis bacillus ..... | |
| 7. food poisoning | non-haemolytic streptococcus ..... | |
| 8. undulant fever | gonococci ..... | |
| 9. sub-acute bacterial endocarditis | Koch's bacillus ..... | |
| 10. gas gangrene | salmonella bacillus ..... | |

4. In the following question you are asked to complete the missing information:-

a) The normal amount of urine secreted in 24 hours by a healthy adult is from ..... mils. (c. cs) to ..... mls. (c. cs)

b) The specific gravity of normal urine is ..... to .....

c) The percentage of water in normal urine is approximately .....%.

d) Name two substances other than water found in normal urine:-

i) .....

ii) .....

---

5. The following statements may be true or false. Place a cross (X) in the space provided if you believe them to be TRUE.

..... the superior and inferior venae cavae empty into the left auricle.

..... 1/12 is greater than 1/16.

Table 5 contd.

Table 5 contd.

..... the efferent nerve fibres transmit motor impulses from the cerebrum.
..... 1/175 is greater than 1/150.
..... 30 mils. (c.cs) equal 1 fluid ounce.
..... ciliated epithelium is found only in the respiratory tract.

---

6. You have a rubber topped vial of morphine sulphate injection containing $\frac{1}{4}$ grain of morphine in 12 minims of solution, and you are required to give 1/6 grain of morphine. How much of this solution would you use?

Amount of Solution used .....

---

7. For each disease listed below in space provided place:-
'1' if patient's blood pressure likely to be raised.
'2' if patient's blood pressure likely to be unchanged.
'3' if patient's blood pressure likely to be reduced.

| | Place no. here | | Place no. here |
|---|---|---|---|
| coronary thrombosis ..... | | lobar pneumonia ..... | |
| acute nephritis ..... | | glioma ..... | |
| Addison's disease ..... | | haematemesis ..... | |
| thyrotoxicosis ..... | | cholecystitis ..... | |
| angina pectoris ..... | | malignant hypertension ..... | |
| pheochromocytoma ..... | | pernicious anaemia ..... | |

8. Place a cross (X) by ANY of the following signs and symptoms you would expect to find in a patient suffering from coronary thrombosis.

| | |
|---|---|
| raised blood pressure..... | slow steady pulse..... |
| diarrhoea..... | abdominal pain..... |
| vomiting..... | reduced blood pressure..... |
| fast feeble pulse..... | restlessness..... |
| oliguria..... | haematemesis..... |
| pain lasting few seconds..... | pain lasting several hours or days..... |

---

9. A moderately heavy worker requires approximately 3,500 calories per day. Suggest a balanced intake of carbohydrate, fat and protein which would give him the 3,500 calories he requires.

a)..... grammes of carbohydrate

b)..... grammes of protein

c)..... grammes of fat

---

10. In the following question you are asked to complete the missing information:-

a) What is the normal quantity of blood in the circulatory system of a healthy adult.....

b) The percentage of water in normal blood is approx-imately.....%

c) Name eight constituents of normal plasma:-

i) .....

ii) .....

Table 10 contd.

iii).....

iv).....

v).....

vi).....

vii).....

viii).....

---

11. An overdosage of each drug listed in Column A can cause two toxic symptoms listed in Column B. Indicate two toxic reactions caused by each drug by placing the appropriate numbers in Column B.

| Column A. | Column B | Place correct nos here | |
|---|---|---|---|
| 1. morphine | dilated pupil ..... | ..... | ..... |
| 2. atropine | pinpoint pupils..... | ..... | ..... |
| 3. digitalis | dry, flushed skin..... | ..... | ..... |
| 4. thiouracil | convulsions..... | ..... | ..... |
| 5. sodium salicylate | nausea and vomiting..... | ..... | ..... |
| 6. cortisone | skin eruptions..... | ..... | ..... |
| 7. quinidine | glycosuria..... | ..... | ..... |
| 8. picrotoxin | slow, shallow respirations..... | ..... | ..... |
| 9. sulphonamides | weak, rapid pulse..... | ..... | ..... |
| | slow pulse..... | ..... | ..... |
| | headache..... | ..... | ..... |
| | raised blood pressure..... | ..... | ..... |
| | agranulocytosis..... | ..... | ..... |
| | deafness..... | ..... | ..... |
| | haematuria..... | ..... | ..... |

12. You have a 1 mil (c.c.) syringe and you are required to administer 35 units of Protamine Zinc insulin from a vial containing 40 units per mil (c.c.) How much will you give?

Quantity of P.Z. insulin to be given.....

---

13. One of the conditions listed in Column B is specifically associated with the abnormal functioning of one of the glands listed in Column A. Link up the corresponding disease and gland by placing the correct number in Column B.

| No. | Column A | Column B. | Place correct no here |
|---|---|---|---|
| 1. | parathyroid | acromegaly..... | |
| 2. | anterior pituitary | hirsutism..... | |
| 3. | lymph | hydronephrosis..... | |
| 4. | adrenal medulla | Still's disease..... | |
| 5. | posterior pituitary | infectious mononucleosis..... | |
| 6. | pancreas | achondroplasia..... | |
| 7. | thyroid | mongolism..... | |
| 8. | adrenal cortex | diabetes mellitus..... | |
| 9. | parotid | tetany..... | |
| | | phimosis..... | |
| | | myxoedema..... | |
| | | leucoplakia..... | |
| | | diabetes insipidus..... | |
| | | gingivitis..... | |
| | | Weil's disease..... | |
| | | epidemic parotitis..... | |
| | | pheochromocytoma..... | |

14. In each of the five sections of this question place a cross (X) in each section by the correct answer.

a) the primary purpose of diet in the treatment of coeliac disease is:-

to encourage intake of carbohydrate and protein.....
to encourage intake of fats and carbohydrate.....
to exclude all foods made with wheat flour.....
to encourage fluid intake.....
to reduce animal content of diet.....

b) the primary purpose of diet in the treatment of ulcerative colitis is:-

to increase bulk in the large intestine.....
to increase fluid intake.....
to decrease intestinal solutions.....
to provide low residue diet.....
to increase fat content of diet.....

c) the primary purpose of diet in the treatment of congestive heart failure is:-

to increase weight.....
to alter fluid retention in tissues.....
to lessen congestion of gastro-intestinal system.....
to reduce blood pressure.....
to lessen protein and fat intake.....

d) the primary purpose of diet in the treatment of infective hepatitis is:-

to encourage production of bile.....
to supply bile direct to small intestine.....
to supply high protein diet.....
to replace the missing bile in food.....
to increase activity of the liver.....

14 contd.

e) the primary purpose of diet in the treatment of chronic nephritis is:-

to reduce protein and increase carbohydrate in diet.....
to reduce blood pressure.....
to make good protein loss and decrease oedema.....
to reduce patient's weight.....
to rest damaged kidney tissue.....

---

15.

a) Name two enzymes secreted by the gastric glands:-

i) .....
ii) .....

b) Name three enzymes secreted by the pancreas:-

i) .....
ii) .....
iii) .....

c) Name five enzymes secreted by the small intestine:-

i) .....
ii) .....
iii) .....
iv) .....
v) .....

---

16.

You have hypodermic tablets strychnine 1/60 grain on hand.

You are asked to give 1/75 grain. How would you do it?

Method to be used for calculation.

.....

.....

.....

.....

.....

.....

---

17. The diseases listed in Column A occur most frequently in children or adults of a certain age and sex. Indicate the sex or sexes by placing a cross(X) in appropriate part(s) of Column B and the approximate age range in Column C.

EXAMPLE:- This following example has been done for you.

| Column A | Column B | | Column C |
|---|---|---|---|
| | M | F | Age Range |
| coronary thrombosis | X | | 40 to 60 |
| acute intussusception | X | X | 0 to 1 |

Do all the others in the same way.

| Column A | Column B | | Column C |
|---|---|---|---|
| | M | F | Age Range |
| endometrioma | | | to |
| simple non-toxic goitre | | | to |
| Paget's disease | | | to |
| pernicious anaemia | | | to |
| acute leukaemia | | | to |
| congenital pyloric stenosis | | | to |
| trichomonas vaginitis | | | to |
| Raynaud's disease | | | to |
| coeliac disease | | | to |
| poliomyelitis | | | to |
| chorea | | | to |
| rheumatoid arthritis | | | to |
| iron deficiency anaemia | | | to |
| Parkinson's disease | | | to |
| papilloma of bladder | | | to |
| disseminated sclerosis | | | to |
| lobar pneumonia | | | to |
| tabes dorsalis | | | to |

18. In the following question you are asked to complete the missing information:-

a) The oxygen content of normal inhaled air is approximately.....%

b) The oxygen content of expired air is approximately.....%

---

19. For each structure of the central nervous system listed in Column A select the ONE function it controls by placing the corresponding number in Column B.

| Column A | Column B. | Place correct no here |
|---|---|---|
| 1. ventricles | controls facial expression..... | |
| 2. pons varolii | controls body temperature..... | |
| 3. cerebellum | transmits sensory impulses..... | |
| 4. hypothalamus | is the nerve of smell..... | |
| 5. medulla oblongata | controls balance..... | |
| 6. olfactory nerve | contains cerebrospinal fluid..... | |
| 7. pyramidal tract | forms bridge between cerebrum and medulla..... | |
| 8. optic nerve. | transmits motor impulses..... | |
| | controls blood supply to brain..... | |

---

20. The following statements may be true or false. Place a cross (X) in the space provided by those you believe to be TRUE.

..... otitis media is an infection of the inner ear.

..... the normal white blood count in any adult is 10,000 - 15,000 per mil (c.c.)

..... the patient in an insulin coma has an abnormally low blood sugar.

..... the incubation period for infectious parotitis is longer than that for measles.

..... hyperchromic anaemia is due primarily to iron deficient diet.

..... a negative Paul Bunnell test is anticipated in cases of infectious mononucleosis.

---

21. For each structure mentioned below in Column A select the muscle associated with it by placing the appropriate number in Column B.

| Column A | Column B. | Place correct no here |
|---|---|---|
| 1. The neck | tibialis anticus..... | ..... |
| 2. pelvic floor | brachialis anticus..... | ..... |
| 3. the shoulder | psoas..... | ..... |
| 4. the arm | trapezius..... | ..... |
| 5. the hip | pectoralis major..... | ..... |
| 6. the head | levator ani..... | ..... |
| 7. the thigh | masseter..... | ..... |
| 8. the leg | quadriceps extensor..... | ..... |

---

22. Name one drug or solution which could be used for each of the following types of enemeta:-

i) sedative.....
ii) anthelmintic.....
iii) stimulating.....
iv) anaesthetic.....
v) carminative.....
vi) evacuant.....

---

23. The signs and symptoms listed in Column A are each specifically associated with one of the diseases and illnesses listed in Column B. Link up the appropriate symptom with the disease by placing the right number in Column B.

| No. | Column A | Column B | Place correct no here |
|---|---|---|---|
| 1. | melaena | hyperchromic anaemia | ..... |
| 2. | positive Widal reaction | cirrhosis of liver | ..... |
| 3. | obstructive jaundice | haemorrhoids | ..... |
| 4. | ascites | subarachnoid haemorrhage | ..... |
| 5. | spoon-shaped nails | measles | ..... |
| 6. | bloodstained cerebrospinal fluid | meningitis | ..... |
| 7. | glossitis | glandular fever | ..... |
| 8 | Koplik's spots | hypochromic anaemia | ..... |
| | | carcinoma of head of pancreas | ..... |
| | | typhoid fever | ..... |
| | | infective hepatitis | ..... |
| | | oesophageal varices | ..... |

REFERENCE NO. _____

UNIVERSITY OF EDINBURGH

STUDENT NURSE SURVEY IN SCOTLAND

HOW TO COMPLETE THIS FORM:-

You will see that various numbers and letters have been used in most of the questions. These numbers and letters are used for coding purposes. All that you are requested to do is to place a circle around the number or letter opposite the correct answer. (For example, in question No. 3, if you are SINGLE, place a circle round 1 - thus (1)

1. Christian Names:

.....

Surname .....

2. Date of Birth: ..... day

..... month

..... year

3. Civil Status: Single ..... 1

Married ..... 2

Widow ..... 3

Separated or Divorced .... 4

4. Permanent Address:-
(Please name following details only).

Town or Village .....

County .....

Country .....

Is your own home in same town or city as this hospital? ..... 1

Within 10 miles of this hospital .... 2

" 50 " " " " .... 3

" 100 " " " " .... 4

" 500 " " " " .... 5

Over 500 " " " .... 6

5. Nationality:-

Scottish ..... 1

English ..... 2

Irish ..... 3

Welsh ..... 4

Commonwealth ..... 5

Other, namely .....

HOME AND FAMILY

6. Father's Occupation:

a) State his present or last occupation ..

.....

.....

b) If he is not now working, is your father:-

retired ..... 1

unemployed ..... 2

dead ..... 3

unknown ..... 4

c) Is your father:-

i) self-employed ..... 1

ii) employed ..... 2

7. Mother's Occupation:

a) Is your mother now in paid employment?

Yes ..... 1

No ..... 2

Unknown ..... 3

Dead ..... 4

b) If 'yes' what is her present employment?

.....

.....

.....

c) What was your mother's last occupation before marriage?

.....

.....

.....

8. a) How many sisters have you?

.....

b) Please state age in years:-

i) ..... iv) .....

ii) ..... v) .....

iii) ..... vi) .....

c) Please state the occupation of your sisters who have left schools:-

i) .....

ii) .....

iii) .....

iv) .....

9. a) How many brothers have you?

.....

b) Please state age in years:-

i) ..... iv) .....

ii) ..... v) .....

iii) ..... vi) .....

c) Please state the occupation of your brothers who have left school:-

i) .....

ii) .....

iii) .....

iv) .....

10. a) Was you father pleased that you became a nurse?

Yes ..... 1
No. ..... 2
Not known ..... 3

If 'yes' please state main reason:- .....

.....

.....

If 'no' please state main reason:- .....

.....

.....

b) Was your mother pleased you became a nurse?

Yes ..... 1
No ..... 2
Not Known .... 3

If 'yes' please state main reason:- .....

.....

.....

If 'no' please state main reason:- .....

.....

.....

11. a) Had you any relative or friend in the Medical or Nursing Profession before you began Nursing?

Yes ..... X

No ..... Y

b) If 'yes' please ring correct code number.

| | Medicine | Nursing |
|---|---|---|
| Father ..... | 1 | 2 |
| Mother ..... | 3 | 4 |
| Brother(s) ..... | 5 | 6 |
| Sister(s) ..... | 7 | 8 |
| Other relative(s) | 9 | 0 |
| Friend(s) ..... | X | Y |

c) Position(s) held by relative(s):-

i) .....

ii) .....

iii) .....

iv) .....

d) Position(s) held by friend(s):-

i) .....

ii) .....

iii) .....

iv) .....

EDUCATION

12. a) At what age did you leave school?

..... years ..... months

b) Name of school last attended:-

.....

.....

c) Indicate which of following type of school you last attended:-

Scotland

Junior Secondary ..... 1

Senior Secondary ..... 2

Fee-paying ..... 3

England and Wales

Secondary Modern ..... 4

Grammar ..... 5

Fee-paying ..... 6

Elsewhere

State School ..... 7

Fee-paying ..... 8

13. a) Did you pass any public examination before leaving school? (for example, Scottish Leaving Certificate or General Certificate of Education)

Yes ..... 1

No ..... 2

b) If 'yes' please give following details:-

Name of Exam(s) passed

i) .....

.....

ii) .....

Subjects Passed

| | Level | |
|---|---|---|
| | Higher or Advanced | Lower or Ordinary |
| i) Mathematics | 1 | 2 |
| Arithmetic ..... | - | 3 |
| ii) Science | | |
| Botany ..... | 1 | 6 |
| Biology ..... | 2 | 7 |
| Chemistry ..... | 3 | 8 |
| Physics ..... | 4 | 9 |
| Zoology ..... | 5 | 0 |
| iii) English | | |
| Language ..... | 1 | 3 |
| Literature ..... | 2 | 4 |
| iv) Languages | | |
| French ..... | 1 | 7 |
| German ..... | 2 | 8 |
| Latin ..... | 3 | 9 |
| Spanish ..... | 4 | 0 |
| Gaelic ..... | 5 | X |
| Greek ..... | 6 | Y |
| v) Other Subjects | | |
| History ..... | 1 | 7 |
| Geography ..... | 2 | 8 |
| Art ..... | 3 | 9 |
| Scripture ..... | 4 | 0 |
| Music ..... | 5 | X |
| Domestic Science | 6 | Y |

vi) Any Other Subject(s) passed

Namely .....

14. Have you passed Part I of Preliminary State Nursing Examination:-

whilst at school ..... 1

or in Pre-Nursing School ..... 2

15. Only answer this question if you decided to nurse whilst still at school.

Did your headmaster or/mistress encourage you to enter this profession?

Yes ..... 1

No ..... 2

Not discussed ..... 3

PREVIOUS EXPERIENCE

16. a) Have you had any previous experience of nursing before coming to this hospital?

Yes ..... 1

No ..... 2

b) If 'yes' state where experience gained

Hospital ..... 1

Nursing Home ..... 2

Home for old People ..... 3

Convalescent Home ..... 4

Own Home ..... 5

School Nursing ..... 6

Nursery Nursing ..... 7

Pre-Nursing School ..... 8

Red-Cross ..... 9

Other, Namely ..... 0

c) Position Held:-

Trained Nurse ..... 1

Student Nurse ..... 2

Assistant Nurse ..... 3

Auxiliary Nurse ..... 4

Nursing Cadet ..... 5

Orderly ..... 6

Other, Namely ..... 7

d) Have you passed any nursing exams since leaving school?

Yes ..... X

No ..... Y

| e) Name of Exam(s) Passed | Year(s) Exam(s) Passed |
|---|---|
| i) ..... | ..... |
| ii) ..... | ..... |
| iii) ..... | ..... |

17. a) Have you attended any OTHER course of study since leaving school?

Yes ..... 1

No ..... 2

b) If 'yes' give following details:-

Subjects Studied

I) .....

II) .....

III) .....

Iv) .....

c) Name any degree, diploma or certificate obtained:-

I) .....

II) .....

III) .....

d) Was this course of study:-

I) full time .....1

II) part-time .....2

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18. a) Have you held any post or appointments other than nursing since leaving school?

Yes ..... 1

No ..... 2

b) If 'yes' please give following details:-

Position Held

I) .....

II) .....

III) .....

c) Indicate type of work:-

| | | | |
|---|---|---|---|
| Government ..... | 1 | Shop ..... | 5 |
| Professional ..... | 2 | Agricultural . | 6 |
| Business ..... | 3 | Domestic Work . | 7 |
| Factory ..... | 4 | Other ..... | 8 |

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NURSING

19. State briefly why you decided to become a nurse:-

a) Main reason .....

.....

.....

Other(s) namely .....

.....

.....

b) In which branch of nursing do you hope to work when trained?

.....

.....

.....

20. a) Was nursing your first choice for a career?

Yes ..... 1 No ..... 2

b) What career(s) would you choose as alternative to nursing?

I) ..... III) .....

II) ..... Iv) .....

---

21. a) Why did you choose to train in this hospital?

.....

.....

.....

.....

b) Have you ever applied to any other training school?

Yes ..... 1

No ..... 2

c) If 'yes' please give following details:-

| | Training School | Year |
|---|---|---|
| I) | ..... | ..... |
| II) | ..... | ..... |
| III) | ..... | ..... |

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22. a) Have you ever been a patient in a hospital or nursing home before you began nursing?

Yes ..... 1

No ..... 2

b) If 'yes' please give the following details about each admission:-

| Age | Length of Stay (weeks) | Illness |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

PERSONAL INTERESTS

23. a) Are you an active member of your church?

Yes ..... X

No ..... Y

b) To which church do you belong?

Church of Scotland (Presbyterian) ..... 1
Episcopal Church in Scotland ..... 2
Church of England ..... 3
Other Protestant ..... 4
Roman Catholic ..... 5
Jewish ..... 6
Other, namely ..... 7
None ..... 8

24. a) What were your hobbies before you started nursing?

I) .....

II) .....

III) .....

b) To what Clubs or other organisations, social, educational or recreational, did you belong before you became a nurse?

I) .....

II) .....

III) .....

Iv) .....

c) Did you participate actively in any of these groups as:-

Group leader ..... 1

Committee member ..... 2

Secretary ..... 3

None of these ..... 4

Other, namely ..... 5

.....