Causes of Student Failure in Accredited Schools of Nursing in Michigan

Mary Leonard Sage
Loyola University Chicago

Follow this and additional works at: https://ecommons.luc.edu/luc_theses

Recommended Citation
Sage, Mary Leonard, "Causes of Student Failure in Accredited Schools of Nursing in Michigan" (1934). Master's Theses. 456.
https://ecommons.luc.edu/luc_theses/456

This Thesis is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Master's Theses by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License.
Copyright © 1934 Mary Leonard Sage
CAUSES OF STUDENT FAILURE IN ACCREDITED
SCHOOLS OF NURSING IN MICHIGAN

BY

SISTER MARY LEONARD SAGE, S.S.J.

A Thesis Submitted in Partial Fulfilment of the
Requirements for the Degree of
Master of Arts in
Loyola University
1934
VITA

Sister Mary Leonard Sage, S.S.J.

Born in Gobleville, Michigan,

November 25, 1884.

Graduate of Gobleville High School,

June, 13, 1902

Graduated from St. Camillus School of Nursing

January, 29, 1910

B. S. Degree, Nazareth College

June 1929
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter I</th>
<th>Introduction</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Definitions Essential to the Understanding of the Problem</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limitations of the Problem</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Method of Investigating the Problem</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter II</th>
<th>History of the Standard Curriculum and of State Registration</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Steps in the Formation of the Nursing Curriculum</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Results of the New Impetus Given by the Civil War</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Developments Prior to 1900</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Registration Laws: Their Aims and Effects</td>
<td>16</td>
</tr>
</tbody>
</table>

| Chapter III| Previous Studies of the Factors Affecting the Efficiency of Schools of Nursing | 29   |

<table>
<thead>
<tr>
<th>Chapter IV</th>
<th>The Present Study</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Sources of Data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Curriculum</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Educational Influence of Clinical Experience Available to Students</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Failures and:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student-Patient Ratio</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Identity of Equipment</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Teaching Facilities</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Identity of Classroom Instructor and Ward Supervisor</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Academic Preparation of Students</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Selection of Students on Basis of I.Q.</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Preparation of the Full-Time Instructor</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Classroom Hours Assigned to Surgery</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Classroom Hours Assigned to Dietetics</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Classroom Hours Assigned to Anatomy</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Classroom Hours Assigned to Materia Medica</td>
<td>98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Failures in:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Teacher's Qualifications</td>
<td>106</td>
</tr>
<tr>
<td>Materia Medica and Teacher's Qualifications</td>
<td>112</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS (CON'T.)

Failures in:
   Anatomy and Grade Placement of the Subject       115
   Materia Medica and Grade Placement of the Subject 122
   Anatomy and Materia Medica as Affected by the Number of
      Sciences Taught Simultaneously                  127
   Cause of Variation between 1931-1932 and 1932-1933 Results 135
   Summary                                          139
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Tables</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>40</td>
</tr>
<tr>
<td>Student and Subject Failures in 46 Schools of Nursing</td>
<td>40</td>
</tr>
<tr>
<td>II</td>
<td>41</td>
</tr>
<tr>
<td>Student Failures According to Subjects Failed in 46 Schools of Nursing</td>
<td>41</td>
</tr>
<tr>
<td>III</td>
<td>47</td>
</tr>
<tr>
<td>Failures and Total Classroom Hours in 46 Schools of Nursing</td>
<td>47</td>
</tr>
<tr>
<td>IV</td>
<td>52</td>
</tr>
<tr>
<td>Failures and Student-Patient Ratio in 46 Schools of Nursing</td>
<td>52</td>
</tr>
<tr>
<td>V</td>
<td>57</td>
</tr>
<tr>
<td>Failures as Related to Identical and Non-Identical Equipment in Classrooms and Wards in 46 Schools of Nursing</td>
<td>57</td>
</tr>
<tr>
<td>VI</td>
<td>61</td>
</tr>
<tr>
<td>Failures and Teaching Facilities in 46 Schools of Nursing</td>
<td>61</td>
</tr>
<tr>
<td>VII</td>
<td>66</td>
</tr>
<tr>
<td>Failures and Application of Class Instruction During Ward Practice in 46 Schools of Nursing</td>
<td>66</td>
</tr>
<tr>
<td>VIII</td>
<td>72</td>
</tr>
<tr>
<td>A Comparison of Fifty Successful and Fifty Unsuccessful Students in 46 Schools of Nursing</td>
<td>72</td>
</tr>
<tr>
<td>IX</td>
<td>77</td>
</tr>
<tr>
<td>Failures and Admission on Basis of I.Q. in 46 Schools of Nursing</td>
<td>77</td>
</tr>
<tr>
<td>X</td>
<td>82</td>
</tr>
<tr>
<td>Failures and Full-Time Instructor's Preparation in 46 Schools of Nursing</td>
<td>82</td>
</tr>
<tr>
<td>XI</td>
<td>87</td>
</tr>
<tr>
<td>Failures and Classroom Hours Assigned to Surgery in 46 Schools of Nursing</td>
<td>87</td>
</tr>
<tr>
<td>XII</td>
<td>91</td>
</tr>
<tr>
<td>Failures and Classroom Hours Assigned to Dietetics in 46 Schools of Nursing</td>
<td>91</td>
</tr>
<tr>
<td>XIII</td>
<td>96</td>
</tr>
<tr>
<td>Failures and Classroom Hours Assigned to Anatomy in 46 Schools of Nursing</td>
<td>96</td>
</tr>
<tr>
<td>XIV</td>
<td>101</td>
</tr>
<tr>
<td>Failures and Classroom Hours Assigned to Materia Medica in 46 Schools of Nursing</td>
<td>101</td>
</tr>
<tr>
<td>XV</td>
<td>105</td>
</tr>
<tr>
<td>Failures of Total Number of Subjects in 46 Schools of Nursing</td>
<td>105</td>
</tr>
</tbody>
</table>
# Lists of Tables (Con't.)

<table>
<thead>
<tr>
<th>Tables</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVI</td>
<td>Failures in Anatomy and Teacher's Qualifications in 46 Schools of Nursing</td>
</tr>
<tr>
<td>XVII</td>
<td>Comparison of Failures in Anatomy and Status of Instructor or Instructors in 46 Schools of Nursing</td>
</tr>
<tr>
<td>XVIII</td>
<td>Failures in Materia Medica and Teacher's Qualifications in 46 Schools of Nursing</td>
</tr>
<tr>
<td>XIX</td>
<td>Failures in Anatomy and Grade Placement of the Subject in 46 Schools of Nursing</td>
</tr>
<tr>
<td>XX</td>
<td>Failures in Materia Medica and Grade Placement of the Subject in 46 Schools of Nursing</td>
</tr>
<tr>
<td>XXI</td>
<td>Failures in Anatomy and Number of Sciences Taught Simultaneously</td>
</tr>
<tr>
<td>XXII</td>
<td>Failures in Materia Medica and Number of Sciences Taught Simultaneously in 46 Schools of Nursing</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student and Subject Failures in 46 Schools of Nursing</td>
<td>42</td>
</tr>
<tr>
<td>2</td>
<td>Failures and Total Classroom Hours in 46 Schools of Nursing</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>Failures and Student-Patient Ratio in 46 Schools of Nursing</td>
<td>53</td>
</tr>
<tr>
<td>4</td>
<td>Failures as Related to Identical and Non-Identical Equipment in Classroom and Ward in 46 Schools of Nursing</td>
<td>58</td>
</tr>
<tr>
<td>5</td>
<td>Failures and Teaching Facilities in 46 Schools of Nursing</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>Failures and Application of Class Instruction During Ward Practice in 46 Schools of Nursing</td>
<td>67</td>
</tr>
<tr>
<td>7</td>
<td>Failures and Admission on Basis of I.Q. in 46 Schools of Nursing</td>
<td>78</td>
</tr>
<tr>
<td>8</td>
<td>Failures and Full-Time Instructor's Preparation in 46 Schools of Nursing</td>
<td>83</td>
</tr>
<tr>
<td>9</td>
<td>Classroom Hours Assigned to Surgery in 46 Schools of Nursing</td>
<td>85</td>
</tr>
<tr>
<td>10</td>
<td>Failures and Classroom Hours Assigned to Surgery in 46 Schools of Nursing</td>
<td>88</td>
</tr>
<tr>
<td>11</td>
<td>Classroom Hours Assigned in Dietetics in 46 Schools of Nursing</td>
<td>90</td>
</tr>
<tr>
<td>12</td>
<td>Classroom Hours Assigned to Anatomy in 46 Schools of Nursing</td>
<td>94</td>
</tr>
<tr>
<td>13</td>
<td>Failures and Classroom Hours Assigned to Anatomy in 46 Schools of Nursing</td>
<td>97</td>
</tr>
<tr>
<td>14</td>
<td>Classroom Hours Assigned to Materia Medica in 46 Schools of Nursing</td>
<td>99</td>
</tr>
<tr>
<td>15</td>
<td>Failures and Classroom Hours Assigned to Materia Medica in 46 Schools of Nursing</td>
<td>102</td>
</tr>
<tr>
<td>Figures</td>
<td>Pages</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Failures of Total Number of Subjects in 46 Schools of Nursing</td>
<td>104</td>
</tr>
<tr>
<td>17</td>
<td>Failures in Anatomy and Teacher's Qualifications in 46 Schools of Nursing</td>
<td>110</td>
</tr>
<tr>
<td>18</td>
<td>Failures in Materia Medica and Teacher's Qualifications in 46 Schools of Nursing</td>
<td>115</td>
</tr>
<tr>
<td>19</td>
<td>Failures in Anatomy and Grade Placement in 46 Schools of Nursing</td>
<td>119</td>
</tr>
<tr>
<td>20</td>
<td>Failures in Materia Medica and Grade Placement in 46 Schools of Nursing</td>
<td>126</td>
</tr>
<tr>
<td>21</td>
<td>Failures in Anatomy and Number of Sciences Taught Simultaneously in 46 Schools of Nursing</td>
<td>130</td>
</tr>
<tr>
<td>22</td>
<td>Failures in Materia Medica and Number of Sciences Taught Simultaneously in 46 Schools of Nursing</td>
<td>133</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Statement of the Problem

The problem worked out in this thesis was undertaken as the direct result of a desire to learn whether the degree of success or failure in state-board examinations in schools of nursing in Michigan could in any perceptible measure be attributed to close adherence to, or deviation from, the Standard Curriculum.

The curriculum and its so-called "influential" factors are basic to the approval of the school by the state board of examiners, and are commonly believed to have a close connection with student success or failure. These factors include (1) the number of classroom hours; (2) the clinical experience available; (3) the identity of equipment in classroom and ward; (4) the teaching facilities; (5) the student material, including admission on the basis of I.Q. and high-school preparation; (6) the instructors' qualifications; (7) the application of class instruction during ward practice; (8) the number of sciences taught simultaneously; and (9) the grade placement of the subjects of the curriculum.

Definitions Essential to the Understanding of the Problem

The Standard Curriculum is an outline of fundamental subjects recommended by the Committee on Education of the National League of Nursing Education. The Curriculum was prepared as a means of securing greater
uniformity in the curricula of nursing schools, and as a guide on which the best schools of the country may build (16:14).

The title "Standard Curriculum" has been retained throughout this study in order to avoid any possibility of confusion in the discussion of the curriculum as outlined by the Committee on Education of the National League of Nursing Education. This Committee believed, that the term "standard" caused confusion, for some thought it to be a model, some a minimum, and others a required standard. In 1932 the Committee decided to drop the word "standard" from the title (15:14). In this study the word is retained, for the title as so given will be intelligible to all who are interested in nursing education, and the new title would in many sections of this thesis be historically incorrect.

Accredited schools in Michigan are those schools which conform to certain minimum requirements formulated by the Michigan Board of Registration of Nurses and Trained Attendants.

The Michigan Board of Registration of Nurses and Trained Attendants is an institution created to protect the community against imposters and inadequates, and is responsible for the inspection and the accrediting of the schools. Participation in the state examination, and the subsequent holding of a certificate of registration, with permission to practice the nursing profession, is reserved for the graduates of accredited schools; consequently our problem resolves itself into an investigation of the relationship which exists between the students who are prepared by the accredited schools and state-board failures.
Limitations of the Problem

The schools of nursing in the state of Michigan were chosen as the writer's field of investigation because of her particular interest in those schools.

In the beginning of this study a survey was made of hospital, medical, and nursing periodicals, research studies, and the published works of prominent medical educators, hospital administrators, and nursing leaders, for facts and opinions bearing upon any phase of nursing education relative to the problem under consideration. It was found that there is considerable evidence of a general assumption on the part of many leaders of general, medical, and nursing education, that the present preparation of the nurse is not adequate to meet the needs of a modern community (37:92).

The writer agrees with the point made by many educators that

the state boards have little means to test the degree of skill acquired by those coming up for examination. They can test the amount of theoretical knowledge which the person has retained after being exposed to lectures, etc. They cannot test to a high degree the amount of knowledge gained by observation and study when the student is not too busy doing routine work. (2:660)

The inadequacy of the formal examination as a means of measuring personality has been recognized since the days of Florence Nightingale. It is generally agreed that examinations fail to measure many qualities which are necessary for the successful nurse and characteristic of that innate aptitude required in the nurse if she would render efficient
service to the community. Poise, tact, altruism, devotion to a cause, are too intangible to be evaluated by an examination, but they are not less essential to the successful nurse than are culture, native capacity to solve problems, to make judgments, and to assume responsibility; and these qualities also lie beyond the range of determination by a formal examination. In spite of the acknowledged inadequacy of the formal examination, it still remains, by virtue of the complete absence of something better, the only possible safeguard for the public and for the profession. Through it a definite, if somewhat unreliable, evaluation of the efficiency of the theoretical preparation of the nurse and of the results of her curricular experience is obtained.

The Method of Investigating the Problem

The method of investigation for the study was fairly simple. A list of all the accredited schools of nursing in the state, together with information as to the number of students in each, the bed capacity of the hospital served, and the relation of the individual courses of study to the Standard Curriculum was obtained. The files of the State Board of Examiners of Nurses and Trained Attendants at Lansing were then consulted. The number of students examined and the number of failures from each school, with information concerning the high-school preparation and the seriousness of the failure was accurately determined from the files. With this information at hand it became possible to ascertain the relation between the numbers of failures from a school and its adherence to the Standard Curriculum.
CHAPTER II

HISTORY OF THE STANDARD CURRICULUM AND OF STATE BOARD REGISTRATION

First Steps in the Formation of the Nursing Curriculum

Nursing education is the term used to designate that specific form of education intended to prepare the student for a profession which has as its purpose the prevention of illness and the service of the sick of a community. The school curriculum, which is the basis for this education, is the means whereby the nurse is prepared to meet the needs of the community which she serves. The Michigan Board of Registration of Nurses and Trained Attendants constitutes an instrument designed to test her ability for this service. Both the state examining board and the Standard Curriculum have been brought about by the slow but progressive trend of nursing education.

Nursing education had its origin in the oral instruction and bedside teaching which comprised the meager training given housewives and good neighbors by doctors and kindly members of the community. The early doctors did most of the nursing of the critically ill. Any resemblance to good nursing, aside from that of the family doctor, was done by the housewives of the neighborhood who were induced to go out nursing, or by the volunteer night watchers (70:119). "Much of the bedside watching was excellent nursing. These unscientific neighbor-nurses were highly skilled in the art of comforting" (28:147). "The greatest pains were taken in
every family to preserve and hand down every scrap of knowledge of the healing art. And so the scanty bits of information gleaned from the doctors were treasured and passed on as wise sayings for the future times of need" (70:113). Miss Linda Richards, America's first graduate nurse, tells us that these household nurses were trained, unsystematically, by tradition and experience, but they had, never the less, a practical and efficient training through the instruction of the older women and the family doctor, which together with a desire to alleviate suffering made most of them excellent nurses. These women, like the emergency nurses of today, were always subject to call. They received no compensation, save that of an approving conscience and the honor of bearing the title of a born nurse (58:4). "Almost the only good hospital nursing was done by the religious orders. Their members had at least a fair education, and were earnest in purpose and were carefully instructed" (28:144).

Forerunners of the Early Training School

The earliest attempt to establish training for women in America was that of the Ursuline Sisters of Quebec, who about 1640 taught the savage women to care for their sick (28:176).

In 1789, Doctor Seaman foreshadowed the modern curriculum when he gave a course of lectures in anatomy, physiology, care of children, and midwifery to a group of about twenty-four pupils. In 1800 a synopsis of these lectures was published. Doctor Seaman may justly be regarded as the pioneer of nursing education in the United States (64:163).

"The theoretical instruction of nurses dates, like the rest of
their training, from the time of Florence Nightingale. Before her time such instruction, even had it been necessary, would have been difficult to impart because nurses were for the most part recruited from a class that was still illiterate" (64:163).

First Steps in the Formation of the Nursing Curricula

With the acceptance of the scientific principles of Lister, Pasteur, and Koch, and with the experimentation of Ignaz Semmelweis and Oliver Wendell Holmes regarding puerperal sepsis, the need for a more intellectual type of nurse and for a definite curricular content became very apparent. This group was nearly contemporaneous with Florence Nightingale and they "did more than all their predecessors to put medicine, surgery, and nursing on a scientific basis". (28:478).

Recognition of the needless sufferings of the soldiers of the Civil War gave an immense impetus to nursing as well as to other organizations among women (21:151). Many doctors, both men and women, strove by writings and bedside instruction to improve the care given to the helpless and to the seriously ill (32:101).

First Training School for Nurses in the United States

The credit for organizing the first permanent training school for nurses in the United States must be given to Doctor Susan Dimock, who was an important figure in the development of nursing education. Doctor Dimock, after taking a course in medicine in America, spent four years of intensive study in Germany. During this period she visited Kaiserwerth
and found her desire to reform the nursing methods of America stimulated by the visit. Her inspiration was embodied in the training school which she established at the New England Hospital for Women and Children, in Boston, Massachusetts (58:9). The hospital charter granted to this institution in 1863 includes a specific charter for a training school for nurses (28:179). In this hospital visiting physicians gave a course of twelve lectures, and the bedside or practical instruction was given by Doctor Dimock and her associate, Doctor Marie Zakrzewaska. In this instruction no textbooks were used and no examinations were given. Great care was taken that the pupil nurse should not know the names of the medicines given, and for this purpose all of the bottles were numbered, not labeled (58:12). At the completion of the time allotted for training, the nurses were quietly given a diploma. To Doctor Dimock's friend and associate, Doctor Zakrzewaska, great credit must be given for managing to attract to the field of nursing, women of a more intellectual type than those previously employed, as also for doing much toward the improvement of general standards (64:137).

The sisterhoods of the Roman Catholic and Protestant Churches were likewise important factors in the early development of nursing education. They established many of the early hospitals and did superior nursing, but they were slow in modernizing their training schools because the very excellence of their work tended to conservatism (28:223).
Result of the New Impetus Given by the Civil War

In 1873 three of the important training schools of the country were established as the direct result of the initiative of women who had been active in patriotic work during the Civil War, and who afterwards, in the Women's Educational Union, sought ways to advance women and to prepare them for self-support (21:153).

In this year Bellevue Hospital of New York, was established by the Hospital Committee of State Charities Aid Association under Louise Schuyler, assisted by Doctor Gill Wylie, but instruction in nursing was not begun until 1874, when Sister Helen, a member of All Saints Episcopalian Sisterhood, who had had training in the University College Hospital, London, England, was appointed its first superintendent (21:153). To her is due credit for eradicating political policies, removing municipal domination, and promoting the general success of the hospital. This was the first training school in the United States which was definitely placed on Miss Nightingale's uncompromising doctrine that

all control over the nursing staff as to selection, discipline, rotation in hospital wards, and standards of teaching, of ethics and morals, should be placed in the hands of a Matron or Superintendent, who must herself be a trained nurse, and responsible to the hospital and medical authorities for the faithful carrying out of medical orders and institutional regulations. (21:154)

The superintendent, who was responsible for the general character of the school, was chosen by the school committee. Miss Richards became night superintendent, and it was she who introduced the practice of
written instructions for the guidance of the student's ward experience and of written reports of the theory put in practice and of symptoms observed. Miss Richards may, therefore, be said to have introduced the case-study method. "I kept notes of one case to be written up for Sister Helen," she writes; each nurse was required to write up a case (58:20).

The Connecticut Training School which Doctor Francis Bacon organized in October of that same year had a distinctly liberal prestige, since it allowed both men and women to serve on its training-school committee. The doctors gave a course of lectures; textbooks were used; and the prospectus announced that Miss Nightingale's "Duties of Nurses" would form the basis of instruction. America is indebted to this pioneer training school for the first textbook on nursing (70:131). For the use of its pupils the Committee published a textbook called the New Haven Manual of Nursing, which was the first one of its kind in this country (21:156).

The Boston Training School at the Massachusetts General Hospital was established in November of the same year by Miss Cabot, a member of the Women's Educational Union and a sister to Doctor Samuel Cabot of Boston. Miss Cabot consulted Mrs. Samuel Parkman, a personal friend of Miss Nightingale, from whom she sought advice. Doctor Wylie, Doctor Susan Dimock, and Mrs. Parkman, acting as Miss Cabot's advisers, concluded that nursing could be made to attract a good class of women, who could become self-supporting. Miss Nightingale's plan was adopted. The training school was made an entirely separate institution from the hospital, thereby placing the management of the nurses in the hands of the trustees, but the school was not a success until Miss Richards took charge. After a
year of vicissitudes she brought the school to a state of excellence and
stability (21:157).

The surgeons and physicians of the time gave their consent to the
introduction of student nurses with the distinct understanding that the
student should have some previous training in the moving and caring for
persons in bed (70:32). Consequently, there can be no doubt that these
schools were recognized even then as institutions of learning, and an
article published in the New York State Journal of November 1873 publicly
recognizes these three schools as contributing to education (28:182).

Difficulties Overcome by the Pioneers

The heroic pioneers of our early American schools fought against
coarseness, vulgarity, neglect, and indifference, and they were obliged
to face immorality and irresponsibility, political corruption, and every
form of opposition and hostility. They tried to replace the illiterate
types of womanhood who were then nursing, with intelligent and capable
persons. Yet they had the most meager of curriculum and equipment.
These pioneers, who brought nursing reform through what we may call its
first phase, "were a strong, determined, and intrepid set of workers full
of energy and the uncompromising spirit of reformers" (21:160).

Developments Prior to 1900

The development of the training-school idea was slow from 1873 to
1883. There were in 1883 only twenty-two schools, yet these reported six
hundred graduates (28:197). This period marks two developments: the
opening of a training school for psychiatric nursing at the McLean Hospital, Waverly, Massachusetts, and the publication of nursing textbooks by many of the first graduate nurses, namely, Clara Weeks, Linda Richards, Diana Kimber, Lavinia Dock, Charlotte Aikens, Isabel McIsaac, and others. Some of these books are on the list of books recommended by the Standard Curriculum.

A little later the growing recognition of the fact that adequate nursing is essential for the effective application of many scientific developments in medical science, as well as for preventive measures, together with an increased demand for service on the part of health organizations and hospitals, created a definite need for more nurses. As a result, nursing schools increased and nursing problems grew more acute.

Injustice has been inflicted upon student nurses in some of the small private hospitals, where the profit from their almost gratuitous service has enriched the proprietors who have contributed practically nothing to the education of their nurses. Hardly less reprehensible has been the practice of other small hospitals, which, not content with an almost free service from their student nurses, have sent them out to private service and pocketed the wages so earned. That these earnings have been devoted to the support of the hospital is no excuse to the managers of such institutions for this disregard of their educational responsibilities. Where education is paid for by service, it would seem plain enough that the earnings from such service should be applied only in furnishing instruction. (70:139)

Administrative problems became more perplexing and educational possibilities became more complicated. "After twenty years of this
intensive individual experience the need of a union was widely and keenly felt" (21:161). Nursing workers were in need of group contacts and of educational standards. Heads of schools felt the need of the kind of help that came through conferring with other heads of schools.

The Nursing section of the Congress of Hospital and Dispensaries, held at the World's Fair in Chicago in 1893, was the first general meeting of the nurses of the United States, and offered an opportunity to supply these felt needs. Doctor John S. Billings, of Chicago, was in charge of arrangements for the meeting, and Mrs. Isabelle Hampton Robb, of Johns Hopkins Hospital, Baltimore, was chairman. Papers were read upon pertinent subjects, among them being one contributed by Miss Nightingale on "Sick Nursing and Health Nursing." Other titles were: "The Necessity of an American Nurses' Association"; "Alumnae Associations, Their Need and Importance"; and "Educational Standards" (20:162). The success of this Congress prompted the organization of a society which was destined to maintain and to advance our standards of training through its educational interests. This society, the American Society of Superintendents of Training Schools, was organized in 1894. Its first and main object, as stated by its President, Miss E. P. Davis, was the furthering of the best interests of the nursing profession by establishing and maintaining a universal standard of training. Referring to the 221 schools then in existence in Canada and the United States, she voiced the opinion that we could have no uniform curriculum or universal standards of training until the qualifications, examinations, and percentage of excellence were the same. (27:684).
In 1895 Mrs. Isabelle Hampton Robb exposed several evils which existed under the name of education, and asked that legislative protective measures be established. Lavinia L. Dock, realizing the need of a national association working through state societies to secure state laws, prepared a paper on "A National Association for Nurses and Its Legal Organization." A committee of five was appointed by the chair, and they, with seven others selected by them, formed the nucleus of a convention to prepare a constitution and by-laws (19:1). This committee selected an equal number of delegates from the oldest alumnae associations. From these, delegates were elected to attend the meeting at Manhattan Beach on September 2, 1896, and the Nurses' Associated Alumnae of the United States and Canada was founded. Mrs. Isabelle Hampton Robb, its first president, suggested that the organization should have its own official magazine; and as a result the American Journal of Nursing was founded in 1900 (21:170). It has since been known as the official organ of the Association.

Present Status of the Two Organizations

In 1912 the Nurses Associated Alumnae of the United States and Canada became the American Nurses' Association, which included only graduate nurses of the United States.

The purposes of the association have been to establish and maintain a code of ethics; to elevate the standard of nursing education; to promote the usefulness and honor of nurses; to distribute relief among such nurses as may become ill, disabled or destitute; to disseminate information on the subject of nursing by publications in official periodicals or otherwise; to bring into communication with
each other various nurses and associations
and federations of nurses throughout the
United States. (18:21)

The American Nurses' Association is model followed by all other
organizations primarily interested in nursing education. Examples of such
organizations may here be mentioned. The specific interest of the National
League of Nursing Education is the education of the student nurse. The
National Organization of Public Health Nurses has as its specific aim to
educate the whole community in health matters as a means of preventing
disease (27:253). In 1930 the American Nurses' Association was the largest
organization of professional women in the world, and boasts a membership of one hundred thousand (28:227).

In 1911 the name of the American Society of Superintendents of
Training Schools of the United States and Canada was changed to the
National League of Nursing Education, a name which better indicates the
scope of its influence. It functions as the educational section of the
American Nurses' Association (44:611). In 1922 its members numbered 700,
which membership increased to 2,000 by 1928. This influential group of
intellectual women has gained the control of the nation's nursing stand-
ards (27:687).

A more conscientious and high-minded-group
of women could not be found nor one more
free from self-seeking. Their thought was
ever how best to fulfill the three-fold
obligation to the hospital, to their
pupils, and the public. There was no
attempt to grasp at power for its own
sake, but only to protect standards of
work and ethics; no smallest desire to re-
tain control over graduate nurses, but only
to equip and prepare them for self-govern-
ment.
The so called "Standard Curriculum" is the result of the combined wisdom of our nursing leaders. Since it is advisory, not mandatory, it has become an ideal to be striven for. (27:687)

Registration Laws: Their Aims and Effects

State organization was the next important step in the development of nursing education, and it was stimulated in nearly every state by the idea of registration (27:688). Parallel with the growth of interest in the matter of state organization was the increasing conviction that, although the various alumnae associations had enabled the nurse to improve her own school, she needed broader outlook and the benefit of the experience of others. A central organization for the various alumnae seemed the logical answer to the needs, and through the united efforts of the individual school alumnae, state associations were formed in 1900. These groups made every effort to elevate nursing standards, and state legislative measures and registration laws were enacted through their efforts. In 1899 the New York Federation of Women's Clubs passed a resolution asking for the formation of a board of examiners chosen by a state society of nurses, and the inclusion of nursing among the professional educations which are subject to the State Board of Regent's supervision.

North Carolina became the leader in the forward movement for better training for nurses when in 1902 she passed the first laws for the registration of nurses. New Jersey and Virginia passed registration laws the following year. By 1915 all but six states had legislative protection, but it was not until 1920 that registration was actually
compulsory. As the laws now stand, they provide for registration through a state-board examination of each applicant.

It is the aim of the examination to determine whether or not the applicant has the required education and proper training, has she an adequate knowledge of the principles on which nursing is based, has she intelligence and ability to utilize this knowledge in the care of the sick and prevention of disease? (43:763)

Even yet, however, there is no uniformity, each state sets its own standards, and some of these standards differ widely.

The public, whom registration laws aimed to protect, are still subject in many states to the bogus product, since anyone who chooses to call herself a nurse "may practice unmolested and charge what she pleases for her service" (28:497).

State registration aims to classify nurses for their own protection, and to protect the public from inferior members of the profession. Some, however, are opposed to registration because they believe that nursing efficiency is the product of personality rather than of training, and that examinations are not fair standards for judging a nurse's work (28:483). But until we can be supplied with a better means of standardizing or measuring, we must, of necessity, continue to do what we can by legal measure (28:487).

Registration laws for the individual have necessitated registration of schools. Only graduates of accredited schools may take the state-board examination and become registered in any state.

Accredited schools are those schools that conform to state and
national standards as to secondary education, length and content of the nursing course, quality and quantity of nursing service, and preparation of instructors (23:496). Recommendation for accrediting is made by state boards of examiners, who aim to promote a good minimum standard in all schools which desire that their credentials shall be of value (23:496).

The National League of Nursing Education, as the forerunner of the National Nurses Association and the state associations, was "a group of far-seeing pioneer women whose ideals and aspirations have endured" and who have furthered the spirit of our early nursing leaders (27:686). Through the untiring efforts of the League, standards of nursing education and nursing service have been raised. "From a most meager beginning, when very little in the way of basic sciences or theory of any kind was taught, the school curriculum has been enriched and broadened (27:687). Some schools have attained college rank, others have become integral parts of universities.

In 1907 "Dr. Richard Olding Beard, of the Minnesota Medical College Faculty, who had always been deeply sympathetic with nurses' efforts to improve their training . . . set forth reasons why nursing should become an integral part of the university scheme of education," and "the School of Nursing in Minnesota was organized and placed under the dean of the college of medicine and surgery, but with its own head," (27:688). The superintendent of nurses "was appointed a member of the faculty of the Medical School . . . All nursing students were required to meet the matriculation standards." They were granted "all university privileges" (23:237). This act gave a new impetus to nursing education
and nursing educators sought further educational opportunities and scientific teaching methods. The Massachusetts General Hospital introduced a practical training in administrative work in 1908. The quality of teaching has been improved by a better-prepared faculty. A more extensive and varied clinical experience has been made possible by the inclusion of the preventive and social aspects of nursing. Educational requirements have been raised. Yet this is not universal; many good schools and many poor schools still graduate students inadequately prepared for the work they are expected and required to do in the practice of their profession.

The National League of Nursing Education, through its meetings, literature, personal contact with educational leaders, and inspections, has developed in our schools of nursing scientific methods similar to those applied in other educational fields. Scientific studies have been stimulated and educational contact with colleges and universities has been made possible.

Adelaide Nutting founded the first "Chair of Nursing and Health" at Teachers College, Columbia University, in 1909 (28:231). Here nursing educators were produced who saw the needs of nursing education, and they were eager for the more intellectual cultural type of applicant.

The suffering and death due to contagious diseases and other causes, together with the great need of a better understanding of psychiatry and surgical procedure, which was demonstrated by conditions during the Spanish-American War and the World War, emphasized the need for advanced scientific knowledge in our nurses, as well as the fact that the possession of a stable personality is necessary to real success in the
nursing profession (28:286). Demands made upon nurses through growth of
knowledge in bacteriology, chemistry, physiology, and other sciences, and
the teaching made necessary through the advance of medicine have necessi-
tated the revision of the nursing curriculum (12:765). In 1918 the Amer-
ican Nurses Association, attempting to define what a nurse should be
taught and to establish uniformity, published a standard curriculum with
details of desirable but not of mandatory procedure (28:283).

In 1917 the Rockefeller Foundation, because of world-wide interest
in public health, appointed a Committee on Nursing in the General Medical
Board of the Council of National Defense, and Adelaide Nutting was chosen
chairman (28:286). Its purpose was to investigate the whole subject of
nurses' training. Miss Josephine Goldmark, well known for her achieve-
ments in social research, was appointed secretary of the committee (19:3).
The Committee's report, which was given to the American Nurses Association
and to the National League of Nursing Education in 1922, marked an epoch
in nursing history (28:287). Many constructive criticisms were made a
basis for action in the following decade (48:287). There was much anxiety
concerning nurses' training, much petty controversy, and constant criti-
cisms from its own workers and the general public, yet the greatest dif-
ficulty seemed to be the scarcity of applicants for training (48:265).

As a direct result of the Rockefeller survey and report there came a de-
mand for more and better instructors, supervisors, teachers, and head
nurses: and here as elsewhere, when the demand exceeds the supply, quality
is sacrificed for quantity. Instructors, supervisors, teachers and head
nurses were hastily provided. They were frequently of an inferior type
and poorly prepared (60:56). National medical and nursing leaders sought to improve the situation.

The Committee on the Grading of Nursing Schools was founded in 1925. Though it is an outgrowth of the National League of Nursing Education, it includes among its members representatives of the American Hospital Association, the American College of Surgeons, the American Medical Association, and other professional organizations. Dr. W. Darrach is chairman of the Committee and May Ayers Burgess, an educator and statistician, is director of the Committee (28:289). It "planned to study the whole nursing situation and if possible to get at the root of its unsatisfactory conditions" (28:289). It began its grading in 1929. Its sectional reports have stimulated self-analysis of, and proposed remedies for, each school with the hope of destroying self-centeredness in promoting the welfare of all. Yet the modern situation is "more difficult than it was in the early days, for it is simpler to see and overcome the obvious than to move forward after a certain degree of excellence and satisfaction is attained" (12:766).

The five-year program adopted by the Committee in 1926 was accepted by the profession with great optimism. "I believe that the standards which are to come from the Grading Committee will be the first step toward placing nursing on an educational basis" (24:638). The study has scrutinized not only the curricular content, including the educational value of its nursing service, but also the environmental relations and social contacts of the schools of nursing. The accrediting agencies have furthered better living conditions and a more complete and
satisfactory training, and "there are few hospitals which exploit their nurses and more which furnish good living conditions and give a complete and satisfactory training" (28:486). The five-year efforts of the Committee have produced tangible results in improving educational departments and have stimulated self-study on the part of the schools, hospitals, and other allied institutions.

Its most significant contribution is the Standard Curriculum of 1927. Yet the standards of 1927 cannot be the standards of 1940. "Following grading there must be regrading and setting up of progressive standards" (12:767).

The fact that our Catholic nursing leaders have always been foremost in promoting the welfare of the sick and needy, and in providing the most efficient nursing care, is demonstrated by the policies of the Catholic Hospital Association. The Reverend Alphonsus Mary Schmitalla, S.J., speaking for the Association, proposed a study of the schools connected with the hospitals of that Association, a study that would in no way overlap the study of the Grading Committee. He would rather use the findings of the Grading Committee as basic to a further study of nursing education in our Catholic institutions with special reference to the ideal of an administrative separation of our schools of nursing from the hospital to which those schools are attached. The Association expressed its satisfaction as to the purpose and aims of the Grading Committee, "and its hopes concerning the great benefit to the profession of nursing which is expected to result from the work of this committee" (62:1321).

The work of the Grading Committee has been followed with much
interest, yet apparently with some misgivings.

If the grading committee closes its books without attempting to delineate for the guidance of training schools its idea of acceptable educational standards, it will be of a great disappointment to many and will in a measure serve to vitiate the practical good that one naturally expects to follow such an expensive and time consuming survey. Facts are fine and columns of figures intrigue but an accumulation of such data by the laying down of some form of nursing school standards, whether idealistic or but minimum in their scope, would serve to protect the great army of nursing probationers knocking at the hospital door for admission, by discouraging the bad and upholding the hands of the good school. The professional and lay public confidently awaits the publication of the conclusions and the recommendations of this splendid committee. (38:92)

The Catholic Hospital Association, in June, 1931, proposed that the Association should establish its own nursing-school standards and its own accrediting agencies. "The association as a whole must commit itself whole-heartedly to their trial so that an effective, carefully controlled and wisely defined system in nursing education may be the result of our efforts" (63:24). This Association has stimulated its members to greater achievement in every phase of nursing education and the promotion of more efficient nursing service. It has co-operated with the Grading Committee and contributed to its findings.

The Grading Committee agreed to make a second grading and was "attempting to formulate what may be thought of as minimum standards, which every school of nursing must meet if it is to call itself a school" (30:19). It expected to publish a final report by the end of 1933 and "believe that it will have met, so far as within its power, the chief
of the nursing and allied profession" (30:20).

By February, 1932, the Committee had launched its second grading. At that time schools of nursing were extraordinarily uneven in their development; the variations among schools were found to be almost infinite. Nearly every school was superior in some points and very inefficient in others. There are, for example, well-known schools in which some of the instructors have not even finished high school. Some of our famous schools far exceed the approved number of working hours for nurses per day and per week, while in contrast to them, schools with much less enviable reputations sometimes treat their students more humanely. Then, too, there are schools apparently so poor, that students should never be allowed to study in them (6:150). These conditions made comparison and grading impossible.

The Committee intends to follow the example of the American College of Surgeons. When that Association made the initial survey of its hospitals, "the conditions disclosed were uneven and discouraging to such a degree that the reports were never made public. They were in fact, burned in the furnace of the hotel where the American College of Surgeons was holding its meeting to consider the findings. Were a White List to be prepared by the Grading Committee at the present time, it seems safe to predict that such a list would also be burned before publication; for the entry of schools upon it, and the omission of schools from it, would be manifestly unfair (6:150).

"In its days of youthful confidence", the Committee agreed to formulate and publish "minimum standards" for "a really good school"
toward which all conscientious schools might be striving. Before its fifth year "the Committee does not want to standardize nursing schools." It has no desire to discourage the "not-acceptable school; neither is it desirous of encouraging the "not educationally acceptable" school. It is intent on stimulating "better practices in nursing education" (7:367).

By March, 1932, the Committee, although those who created it and supported it expected that its studies would result in some kind of a classification, had voted to issue no classification; neither an approved list nor even a "black list". It had decided not to do the thing for which it was primarily created. And it wished its trusting public to understand why. Classification, it believes, would result in "gross injustice to many schools" and "damage the cause of nursing education": i.e., retard its development. It is convinced that, though classification would eliminate many existing evils, interest in the needful changes among a progressive public by "the enlightenment and persuasion" of those responsible for nursing education will be much more beneficial (13:311).

The Catholic Hospital Association is of like opinion:

Any form of listing of schools, if grading or classification for educational quality is there in implied, antecedent to an opportunity given to all schools to be included in the list, is not advantageous to the promotion of nursing education (63:25).

The Association would formulate for its own schools "provisional criteria of educational excellence" as an aid to all aspiring to higher attainment (63:25).

The American Hospital Association has not been unmindful of the
efforts of the Grading Committee. It has given its moral, financial, and advisory support. Its Committee on Nursing has made a careful study of its findings. Its recent decision places the responsibility of general nursing education, including nursing service, "squarely before" the Hospital Association, "the greatest producers and users of nurses" (23:51).

The primary purpose for the existence of the American Hospital Association is to establish and maintain high standards of hospital service, to promote efficient care of the sick, and to assist in the control of disease. The Association, while not minimizing the work of the Grading Committee, having participated in the study made by the Committee, expressed through its president the disappointment felt by its members that no "definite standards of measurement" were to result from the five-year survey (23:51). Nevertheless,

a large and important work has been done by the Committee. . . What I have said should not be interpreted as a criticism of the grading committee. The results of its work have already helped hospitals all over the country to raise standards of nursing. (23:52)

In acceptance of the Committee's invitation and in response to duty, a nursing council of the American Hospital Association was advocated which should confer with other educational agencies to "formulate such plans and stimulate such sentiment within our constituency that the training of the nurse may be established upon a sound educational basis" (47:1067). The Association proposes a minimum standard as "a guide to the weak" which will in no way deter the capable visionary who would forge ahead (23:51).
Another group of the medical profession shows definite willingness to come to the aid of nursing. As early as November, 1932, the Committee on Nursing of the Association of American Medical Colleges stated that, on account of the relation of nursing education to medical practice, medical educators should take an active interest in the education of the nurse, and that nursing should control its educational machinery with the advice and aid of other educators (56:464).

The Association of American Medical Colleges would place the minimum educational standards for teachers in the schools of nursing on a par with the preparation demanded of public-school teachers. The Association recommends:

That since nursing is fundamentally a profession auxiliary to medicine in its aims and procedures, nursing education, despite the progress which has already been made, would do well to accept the directive guidance of medical education concerning many of the features of nursing education; and that, therefore, the influence of the school of medicine should increasingly pervade the development of the school of nursing. (56:464)

It was suggested that a committee be appointed by the Association which should offer such guidance as would seem advisable, not only in safeguarding the medical aspect of nursing and nursing education, but also "such activities in the field of nursing education as may from time to time be found necessary for the safeguarding of the interests of schools of medicine in the progressive development of schools of nursing" (56:467). The Association, with a word of warning, discourages the approval of curricula not acceptable to the graduate school and not suitable for further work toward advanced degrees (56:465).
When, at the close of the year 1933, the Grading Committee terminated its five-year program, it left us the curriculum of 1927 as the reprint of 1932. Upon publication of this reprint, the organizations most closely interested and the substantial supporters of the grading committee found that, in spite of five years of very sincere labor on the part of the committee and of the expenditure of nearly $2,000,000, no vital change had been made in the Standard Curriculum and no classification of schools had resulted. The criticisms against the nursing profession in 1933 were very similar in content and source to the criticisms of 1920, with the exception of the shifting of the emphasis from under-production to over-production (48:263).
CHAPTER III

Previous Studies of Factors Affecting the Efficiency of Schools of Nursing

The education committee of the National League of Nursing Education, the Catholic Hospital Association, the American Medical Association, and the American Hospital Association have sponsored studies touching upon remote situations in nursing service as well as upon the more immediate and specific. Very intensive and extensive studies have been made of nursing cost, of time requirement, of supply and demand, of distribution, and of teaching and rating methods. These studies have suggested many factors as causative of the inadequacy of nursing education, and from the information gained by them, many remedial measures have been formulated and many helpful suggestions offered.

Among the investigations most relevant to this study might be mentioned those of Miss Blanche P. Pfefferkorn, Director of Studies of the National League of Nursing Education. She investigated the relations which exist between the bedside-nursing hours provided, and the bedside hours required, in order to give good nursing care to the patient. In the report of this investigation, published in the American Journal of Nursing, January 1932, she states that the emphasis should be placed upon the allotment of a sufficient time for a good quality of nursing, and that consideration should be given to the amount of time required to perform certain technical procedures, under the most usual circumstances.
This time allotment is commonly called the average time requirement (50:81).

For this purpose, different student-patient ratios were studied, techniques were criticized, type of supervision were analyzed, and working conditions in the wards were scrutinized. Each experiment showed that the time required to perform the designated technical procedures varied with the ability and dexterity of the individual student (50:80). Nevertheless, Miss Pfefferkorn believes that it is possible to estimate the time-patient ratio, with its varying factors.

Another interesting study conducted by Miss Pfefferkorn and reviewed in the American Journal of Nursing, December, 1933, investigated the amount of nursing time allotted in hospitals connected with medical colleges to the performance of nursing procedures of definite educative value. She found that the student spent time in the routine and purely mechanical activities of replacing equipment, gowns, chaperoning physical examinations and history-taking, and accompanying the revisiting patient to the medical teaching and medical treatment clinics long after the excursion had ceased to be of educational value to herself.

Miss Pfefferkorn concludes that, whereas a school of nursing derives much benefit from being associated with these medical schools from the standpoint of the number and variety of cases admitted, the wasteful methods of instruction, if indeed they provide any instruction at all, should be eliminated and an adequate graduate staff be provided to supply the necessary hospital service (51:1188).

Miss Helen Hansen made a study, as reviewed in the American Journal
of Nursing, March, 1934, of the current methods of rating ward practices in the 53 accredited schools of California and in 26 accredited schools of other states. Her purpose was to stimulate each school through self-analysis to more efficient clinical procedure and more accurate student rating by the use of an objective scale, which would eliminate to some degree the personal element of the subjective estimate, which by its very nature tends to influence the grade given.

Miss Hansen states that, where the subjective-type rating scale was used, one student's grade, when rated by various supervisors, ranged from 50 to 80. She believes that the objective scale, when checked impartially and without the influence of former ratings and opinions concerning the student rated, should be of value in determining the progress of the student and in helping the student by personal conferences. The result of these tests may be made available to the student who is interested in self-improvement. She acknowledged that her scale was somewhat impractical in its subdivisions and in need of further revision before it could be of definite value (32:982).

Miss Hickman, hoping to improve the student clinical rating, made a study of the current methods used to evaluate clinical efficiency. She found that the subjective type of rating predominated, in spite of its inherent weaknesses. Ratings which are often made up in terms so vague as to be almost meaningless and which may be influenced by prejudice on the part of the examiner or by her emotional reaction to some outstanding trait of personality in the examinee, are frequently used to determine the grading of the student; and such ratings, quite naturally, result in a
wide range of grades for an individual student, and do serious injustice to both the student and the school.

Miss Eickman devised an objective rating scale, and conducted experiments intended to test the reliability of her method. Employment of the subjective test had shown a wide range of from 70 to 95 in the rating of one student, whereas Miss Eickman's experiment showed a rating by three different judges of 44, 48, and 50. The low rating was later justified by the withdrawal of the student in question, because she herself had no interest in nursing and her instructor found her lacking in ability to give good nursing service (22:271). Miss Eickman further states that the influence of the human element can affect the validity of the objective type of rating scale. "An indifferent head nurse may nullify the objectivity of any scale" (22:271).

Dr. Marion Leonard, after a study of the clinical instruction in professional services, suggests the need of better educational facilities to attract a more intelligent type of womanhood and of adequate and carefully selected educational material elaborated from the vast fields of the medical and social sciences and of psychology and public health, rather than a hard-and-fast theory compressed into textbooks (40:593).

Miss Newton studied the records of 202 students of the Pasadena Hospital School of Nursing to determine the factors which may have influenced the 117 students' success in nursing theory, the probably factors because of which 85 students withdrew, and the relation between the successful student's nursing theory grades and state board failures.

Miss Newton believes, according to the account given in the
American Journal of Nursing, October, 1933, that, since a student nurse's inability to master her nursing theory in a satisfactory manner necessitates dropping her from the school, it would be wiser to guard against admitting students with records of poor scholarship, who frequently enter the school of nursing in the belief that nursing education requires little mental activity. Facts gathered by Miss Newton show that there is a distinct correlation between the nursing-theory grades and the high-school grades, considered in the light of the ratio of recommended and academic to total units earned, which would seem to indicate the advisability of a more careful evaluation of the prospective student's high-school course as a means of preventing failures. Her survey shows that poor scholarship is frequently related to failure.

Miss Newton also found the correlation between nursing-theory grades and state-board failures to be such that, in all kindness to a student weak in this subject, she should be dropped early in the course rather than be allowed to meet denial or registration and be barred from practicing her profession in any state (45:990).

Miss Gray made a study of the catalogues of 60 well-known schools of good repute. She offered the following suggestions, which are of particular interest in the present study because they deal with "Teaching Anatomy and Physiology Effectively (29:1075). Better results, she says, would follow if this course were not taught in the same semester with two or three other sciences, if it were not crowded into the first four to six months of the first year, but spread over several terms of the first, second, and third years, if it were closely correlated with nursing
practice as a means of motivating the young student; if a larger number of hours were devoted to this subject; if definite laboratory experiences with sufficient equipment, or better still, the autopsy method of teaching, were employed; if well-prepared instructors were provided; and if the subject matter were constantly used during the interval between the end of the course and the state-board examination (29:1079). Miss Gray emphasized the necessity of correlating anatomy and physiology with the nursing care of the patient in every department of the hospital and during the student's entire period in the school (29:1081). Our surprise at the number of state-board failures is not justified when we fail to utilize the wealth of opportunities for application of the anatomy and physiology classroom instruction during the student's clinical practice as long as she remains in the school (29:1083).

Sister Helen Jarrell made a study of the state-board failures of the Catholic schools of the United States and Canada for the years 1928-1929 and 1929-1930, which disclosed the fact that, contrary to the prevailing opinion, materia medica does not rank first as a cause of failure, but that anatomy and physiology when given in combination take first rank among the five subjects which caused failures.

Other findings in her study worthy of note were the lower percentages of failures in materia medica of the affiliated schools as compared with the non-affiliated schools, and the greater percentage of failures in the schools which limited instruction to the freshman year and in the groups where essay-type examinations were given (38:171).

Sister Helen Jarrell found, contrary to expectation and to the
"assumption usually made" (39:378), that the National League of Nursing Education program was not adequate preparation for state-board success, and that the professional preparation of the teachers and the classification of the students according to mental capacity and characteristic work habits had no significant connection with frequency of failure. Sister Helen Jarrell is convinced that there is an increasing tendency to use laboratory experimentation in the teaching of materia medica and that this method adds much to the scientific value in the education of our students; that the freshman-junior combination would lessen the frequency of state-board failures; and that the academic preparation of the student has an important bearing upon her success in materia medica.

Sister Athanasia's comparative study of the curricula of the accredited schools of Missouri shows a wide variety both of subjects included in the curricula and of time allotted to the same subjects in the different schools. This she considers one of the outstanding weaknesses in the present system of nursing education in that state. In this she seems justified, since the minimum legal standard is considered the least a school may maintain and still do acceptable work, yet 88.4% of the schools studied failed to meet the minimum legal requirement (5:1417).

This statement prompted the present study. The writer became desirous of discovering the relation of Michigan's curricula to the Standard Curriculum and their influence on state-board failures.

The findings and recommendations of the Committee of Nursing Education of the National League of Nursing Education are familiar to all who are interested in nursing education and any reiteration would seem
superfluous. In evaluating nursing education these investigations have taken into consideration practically all factors of the field, while the writer has confined this study to the curriculum—the specific course of study of each accredited school and the influential factors which may promote or retard its successful operation.
CHAPTER IV

THE PRESENT STUDY

Sources of the Data

In the beginning of this study a survey was made of hospital, medical, and nursing periodicals; research studies; and the published works of prominent medical educators, hospital administrators, and nursing leaders for facts and opinions bearing on any phase of nursing education relative to the period under consideration.

Data obtained from the Michigan Board of Registration of Nurses and Trained Attendants consist of the state-board failures of the students of the 46 accredited schools of Michigan, including the grades indicating seriousness of their failures. With each student's failure is included the student's academic preparation—high-school years completed, content of courses, and average grade; the school of nursing admission requirements as to age and academic preparation; a list of the accredited schools including the number of students; curricular hours in subjects taught; daily average of patients available for clinical experience; textbooks used; faculty preparation; identity of classroom instructor and ward supervisor; duplication of equipment for classroom demonstration and ward application of theory and practice; year and semester of instruction in each subject; and the examination questions to which the examinees were subject.

In tabulating the data collected, the writer designated the
schools of nursing by letters of the alphabet ranging from capital A to capital Z, inclusive, and from small a to small t, inclusive. This arrangement was agreed upon between the writer and those who furnished the data as a means of concealing the identity of the schools.

During the session 1931-1932, 44 of the 46 schools were represented in the state examinations. Nine hundred and thirty-two students participated in the examinations; of these 29 or 3.1% failed. Each student was subject to 10 examinations so that the total number of examinations was 9,320. Of the 9,320 examinations 65 or .7% were failed. Anatomy was failed by 28 or 3% of the students, materia medica by 18 or 1.9%, and surgery by 10 or 1.1%, dietetics by 6 or .6%, and communicable diseases by 2 or .2%. One student failed in a combination of subjects: "Ethics and History of Nursing", "Psychology and Mental Hygiene", "Modern Social and Health Movements", and "Professional Problems".

It must, at this point, be noted that during this session the 65 failures in 9,320 examinations are so few that the sampling can not be considered adequate for conclusive results. The success of all the examinees in "Medical Diseases", "Bacteriology and Hygiene", "Pediatrics", "Obstetrics", play a large part in lowering the percentage of the subject failures.

The relation of the failures to the examinations during the session of 1932-1933 provides a better criterion. During this session the same 46 schools were represented in the state examinations. They contributed 887 examinees, and 92 or 10.4% failed. Each student was subject
Of the 8,870 examinations, 164 or 1.8% resulted in failure. The number of examinees of the second year was less by 45 or 4.8%, while the number failed were increased by 63 or 217.2%.

Anatomy caused 73 or 8.2% student failures, materia medica 55 or 6.2%, surgery 29 or 3.3%, and dietetics 6 or .7%. There was an increase of student failures from 3.1% during the 1931-1932 session to 10.4% during the 1932-1933 session, causing a 217.2% student failure increase during the second session. The total number of subject failures shows a definite increase in relation to total examinations. Of the 9,320 examinations of the session 1931-1932, only 65 or .7% were failed, while of the 8,870 examinations of the session 1932-1933, 164 or 1.8% were failed. The increase of subject failures was 152.3%. This relationship is shown in Table I, page 40, and Table II, page 41. It is illustrated in Figure 1, page 42.
<table>
<thead>
<tr>
<th></th>
<th>1931-1932</th>
<th></th>
<th>1932-1933</th>
<th></th>
<th>Increase During 1932-1933</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
</tr>
<tr>
<td>Examinees</td>
<td>932</td>
<td></td>
<td>887</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Failures</td>
<td>29</td>
<td>3.1</td>
<td>92</td>
<td>10.4</td>
<td>63</td>
</tr>
<tr>
<td>Total Subject Examinations</td>
<td>9320</td>
<td></td>
<td>8870</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject Failures</td>
<td>65</td>
<td>.7</td>
<td>164</td>
<td>1.8</td>
<td>99</td>
</tr>
<tr>
<td>Subject Failures</td>
<td>1931-1932</td>
<td>1932-1933</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Examinees</td>
<td>932</td>
<td>887</td>
<td>-45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject Failures</td>
<td>29</td>
<td>92</td>
<td>+63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>3.1</td>
<td>10.4</td>
<td>+7.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatomy</td>
<td>28</td>
<td>73</td>
<td>+45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>3.0</td>
<td>8.2</td>
<td>+5.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materia Medica</td>
<td>18</td>
<td>55</td>
<td>+37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>1.9</td>
<td>6.2</td>
<td>+4.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>10</td>
<td>29</td>
<td>+19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>1.1</td>
<td>3.3</td>
<td>+2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietetics</td>
<td>6</td>
<td>6</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>.6</td>
<td>.7</td>
<td>+0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicable Disease</td>
<td>2</td>
<td>0</td>
<td>-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Cent</td>
<td>.7</td>
<td>0.0</td>
<td>-0.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STUDENT AND SUBJECT FAILURES OF 46 SCHOOLS OF NURSING

Subject Failures

Student Failures
In anticipation of further findings, it becomes necessary to call attention to a significant fact, not learned until the study was fairly complete. Struck by the rather marked differences between the results as tabulated for the two sessions under consideration, the writer found it necessary to make a further attempt to understand the causes which had brought about such a variation. It was learned that the attitude of the examiners had undergone a considerable change, and that the marking of the papers in 1932-1933 was much more accurate than in 1931-1932. Had the lenient marking of the 1931-1932 papers been known to the writer early in the investigation, the minor significance of the study would have necessitated the abandonment of the problem as unworthy of research. The more accurate marking of the 1932-1933 papers resulted in a higher number of failures and a sufficient percentage of failure to be quite significant to the problem under consideration. The method used in grading these students is not known to the writer. It seems fair to believe that the 89 failures of 1931-1932 represent the worst failures. The number of students who actually failed cannot be determined.

We will now undertake a study of those factors which may have had an influence on the results as given above. The first to be considered is the curriculum.

The Curriculum

The curriculum is a fundamental factor in nursing education (4:25). It is one of the most vital factors influencing nursing education (26:343). The curriculum and its influential factors are basic principles in
determining the approval of the individual school. And since the curriculum and its influential factors are so important to the success of these schools, any deviation in fundamental courses must of necessity stand to hinder the attainment of the specific objectives (4:25).

The Committee on Nursing Education of the Catholic Hospital Association states that "the League for Nursing Education has found it necessary to lay down a standard curriculum, and it is a matter of great satisfaction that this curriculum is being progressively adopted" (57:519).

The satisfaction expressed by this committee seems to justify the general assumption to which Sister Helen Jarrell referred that the Standard Curriculum is adequate in preparing the student nurse for registration and for subsequent service to the community, although her own findings did not sustain the assumption, in as much as they did not indicate that the Standard Curriculum is an adequate preparation for success in examinations of the states she investigated (39:378).

The Michigan Board of Registration of Nurses and Trained Attendants accepts the recommendations of the Standard Curriculum in the basic subjects with the exception of "Nursing Psychology", the national curriculum being 30 hours and the state curriculum but15, and "Professional Relations", which the state curriculum included with "History of Nursing" and "Ethics", recommending 30 hours while the national recommendation suggests 30 hours and 30 for "Psychology."

Classroom Hours in 46 Schools and Failures

The amount of time given to theoretical instruction in each
Subject and the time given to all the subjects of the school will of necessity influence the power of assimilation and the ability of the student to apply the classroom instructions to her clinical experience. It will consequently, promote the general efficiency of the students.

A study of the curricular content of the different schools of Michigan would seem to imply that the needs of the nurses vary in the different schools, even in the same area. The curricular hours in each subject show a wide disparity. The curricular content varies from school to school, and the total curricular hours of individual schools show a range from 570 hours in one school to 1,335 in another.

The first factor which was considered in striving to arrive at a reasonable judgment as to the possible causes of the state-board failures, was the total curricular hours and their relation to subject failures.

The Standard Curriculum, which "has been agreed upon as a reasonable working basis for the higher grade of American Nursing Schools," recommends that the total minimum theoretical hours be not less than 885 (17:14).

The forty-six schools were classified according to (1) those not meeting the Standard Recommendation of 885 hours, referred to in this thesis as "Less than Standard," and (2) those meeting or exceeding the Standard Curriculum, referred to as "Standard or More." The tabulations show that during the session of 1931-1932, 21 of 44 schools participating in the state examinations gave less than 885 theoretical hours, i.e., less than the minimum standard recommended. These 21 schools contributed 311 of the examinees, of whom 13 or 4.1% failed, causing 31 or 1% subject
failures. Of the 44 schools, 23 allotted 885 or more theoretical hours. These schools sent 621 examinees, 16 or 2.6% of whom failed, and caused 24 or .5% failures.

During the session of 1932-1933, 46 schools participated in the examinations. The students of 22 of these schools were prepared by less than standard hours and contributed 203 examinees; 42 or 13.9% failed, causing 68 or 22.4% subject failures, while 50 or 8.6% of the 584 examinees from the 24 schools which allotted 885 or more theoretical hours failed, causing 96 or 1.6% subject failures. This relationship is shown in Table III, page 47, and Figure 2, page 48.

In each instance the schools that prepared their students by the more extensive curricular hours were the more successful. And in both instances the student failures and subject failures show considerable increase during the second session. If the curricular hours are determinants of the successes and failures, the question arises, what is the relation of the influential factors of the curriculum to the student and subject failures?
TABLE III

FAILURES AND TOTAL CLASSROOM HOURS IN 46 SCHOOLS OF NURSING

1931-1932

<table>
<thead>
<tr>
<th>Hours</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than Standard</td>
<td>21</td>
<td>311</td>
<td>13</td>
<td>3110</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Standard or More</td>
<td>23</td>
<td>621</td>
<td>16</td>
<td>6210</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

1932-1933

<table>
<thead>
<tr>
<th>Hours</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than Standard</td>
<td>22</td>
<td>303</td>
<td>42</td>
<td>3030</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Standard or More</td>
<td>24</td>
<td>584</td>
<td>50</td>
<td>5840</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.6</td>
</tr>
</tbody>
</table>
Figure 2

FAILURES AND TOTAL CLASSROOM HOURS IN 46 SCHOOLS OF NURSING

13.9%

1931-1932 1932-1933

4.2% 2.4%

Less Than Standard

1% 1%

1931-1932 1932-1933

2.6% 1.6%

Standard or More

0.5% 0.5%

Student Failures Subject Failures
Educational Influence of Clinical Experience Available to Students

The primary aim of classroom instruction is to give to the student a fund of knowledge that will enable her to understand and interpret her clinical experiences. Clinical experiences properly applied to classroom instruction fix theoretical principles. Visual aids, which are of the utmost importance in the learning process, are most effective in the natural setting. This is possible only where an adequate number of patients and a reasonable variety of diseases are available.

The size and character of the hospital -- the school laboratory -- will of necessity influence the type of clinical experience available for educational purposes. That clinical material may be adequate, the school must be associated with a general hospital having not less than 100 beds (16:21). The hospital which cares for a fairly large number of patients and a variety of the more common forms of medical and surgical diseases contributes the most desirable teaching field.

During 1928 and 1929, of Michigan's accredited schools of nursing affiliated with hospital, 39 were connected with general hospitals, i.e., they were not restricted to one type of disease; three varied from the general type in combining hospital and sanitarium; two cared for the psychiatric patients only, and one for children only.

The bed capacity of these hospitals ranges from 30 to 2,738 beds. In a study of this kind it is impossible to determine the ever-varying types of disease and the character of service available in each specific
instance. Moreover, the bed capacity, once considered a basis in evaluating clinical material available for educational purposes, has lost its significance, since during the period of this study, empty beds have increased in number (42:329). The daily number of empty beds, as given in the records of the state inspector, shows a range of from 30 in the small hospital to 775 in the large institutions. The total bed capacity of the hospitals furnishing the student clinical material is 14,528, while the daily average is 9,665, which shows the daily average of 4,863 vacant beds. The daily patient average was obtained. The figures are more reliable as an index of clinical material available to the student and they are better suited to this study than the figures for the bed capacity would be. The daily patient average has been determined and the student-to-patient ratio has been given consideration. Here it must be borne in mind that the actual number of the student body can not be considered as available for bedside nursing. In each instance the rotation of services lessens the bedside nursing staff for laboratory experience in some, if not all, of the following services: the operating room, dietetic, pathological, and X-ray departments, etc. The night nursing service likewise lessens the bedside personnel.

Student-Patient Ratio and Failures

In an effort to determine the relation of the student-to-patient ratio to state-board failures, the total student body of each of the 46 schools and daily average of patients were grouped in a relation of one bedside nurse to every two patients, one bedside nurse to every three
patients, and one bedside nurse to more than nine patients.

The result of this tabulation shows that for the year 1931-1932, in which 44 of the 46 schools sent students to the state-board examinations, there existed a ratio of one bedside nurse to every two patients in 34 of the 44 schools. These 34 schools contributed 526 of the examinees, of which 25 or 4.8% failed, causing 57 or 1.1% subject failures. Five schools had a ratio of one bedside nurse to every three patients. These 5 schools contributed 262 examinees, of whom 4 or 1.5% failed, causing 8 or .3% of the subject failures. The remaining group of 5 schools were more difficult to classify, the range of student-to-patient ratio varying from one bedside nurse to 9 patients and from one bedside nurse to 124.1 patients. From this extreme group 144 or 15.4% of the examinees participated, among whom there was no failure.

A like tabulation was made of the 46 schools participating in the examinations of 1932-1933. In these 46 schools there was a ratio of one bedside nurse to every two patients in 36 instances. These 36 schools contributed 543 of the examinees, of whom 65 or 12% failed, causing 117 or 21.5% subject failures. Five of the 46 schools had a ratio of one bedside nurse to every three patients. There were 242 examinees contributed. Nineteen or 7.9% failed, causing 32 or 1.3% subject failures. The remaining 5 schools, with a ratio of one bedside nurse to nine and more patients, contributed 102 examinees, of whom 8 or 7.8% failed, causing 15 or 1.5% subject failures. This relationship is shown in Table IV, page 52, and Figure 3, page 53.
# TABLE IV

FAILURES AND STUDENT-PATIENT RATIO IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th></th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
</tr>
<tr>
<td>1-2</td>
<td>34</td>
<td>526</td>
<td>25</td>
<td>4.8</td>
<td>5260</td>
</tr>
<tr>
<td>1-3</td>
<td>5</td>
<td>262</td>
<td>4</td>
<td>1.5</td>
<td>2620</td>
</tr>
<tr>
<td>1-9</td>
<td>5</td>
<td>144</td>
<td>0</td>
<td>0.0</td>
<td>1440</td>
</tr>
</tbody>
</table>

1932-1933

<table>
<thead>
<tr>
<th></th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
</tr>
<tr>
<td>1-2</td>
<td>36</td>
<td>543</td>
<td>65</td>
<td>12.0</td>
<td>5430</td>
</tr>
<tr>
<td>1-3</td>
<td>5</td>
<td>242</td>
<td>19</td>
<td>7.9</td>
<td>2420</td>
</tr>
<tr>
<td>1-9</td>
<td>5</td>
<td>102</td>
<td>8</td>
<td>7.8</td>
<td>1020</td>
</tr>
</tbody>
</table>
Figure 3

FAILURES AND STUDENT - PATIENT RATIO IN 46 SCHOOLS OF NURSING

Student Failures

Subject Failures

1 - 2 4.8% 1.1% 2.2%
1 - 3 7.9% 1.5% .3%
1 - 9 7.8% 1.5%
It can be seen readily that during the session of 1931-1932 the greater proportion of student failures occurred in the one-nurse-to-two-patient-ratio group, while the one-nurse-to-three-patient-ratio group was much more successful and the one-nurse-to-nine-and-more-patient-ratio group sustained no failures.

No very clear inference can be drawn from this finding. Yet the existence of more failures in the "very small hospital" with "definite limitations" in clinical material and teaching facilities may present material for further study (16:20).

Then, too, the educational significance of the student-to-patient ratio during the time under consideration become increasingly more difficult to estimate. Additional routine technical procedures are accounted nursing duties which in the past were reserved for the medical student or a specially trained technician (59:686).

Furthermore, scientific experimentation has so added to diagnostic tests, to prophylactic and therapeutic procedure, that the patient care has become much more complicated and time-consuming. The increasing number and delicate nature of these technical procedures demand an expenditure of time which varies with each patient's condition and the student's ability. "Each patient presents individual needs... Each nurse differs in speed and precision of thinking and acting" (50:81).

The patient's stay in the hospital during the time covered by this study adds another element for consideration. The hospital patient is usually a clinical study during his entire stay. The convalescence period following any type of illness is more apt to be passed in the home.
than formerly. This type of patient, while often of less educational value, was also less time-consuming. Then, too, the very sick patient who once demanded a special nurse now because of financial stress often depends on the general ward service and becomes clinical experience of educational value to student nurses.

A closer study of the classification of the hospitals most responsible for the group of higher student-patient ratio shows three special or mental hospitals that maintain high daily patient averages and small student groups. The patients available for clinical experience to the students in these mental hospitals have not been determined and so further data could not be obtained.

The fact that these hospitals must affiliate with general hospitals in order that their students may receive sufficient experience in the various clinical services does not contribute to a general opinion in favor of the mental hospitals as offering valuable experience in general nursing service. Therefore these results of the student-patient ratio can have no definite bearing on the conclusions of this study.

Identity of Equipment in 46 Schools

The facilities of the classroom are of little significance unless there is made definite provision for the application of the same theoretical principles with the identical equipment during the ward service. While the educational value of the classroom must not be minimized, unless the classroom experience is allowed expression it will not be retained. That the theoretical impression may be allowed effective expression, the
the ideal situation of identity of theoretical impression with clinical expression must be established. To use one type of equipment in the classroom and another type on the ward tends to minimize the value of the theoretical principle in the student's mind and to cast doubt upon the integrity of the instructor and to promote "forgetfulness of the underlying principles" of the technical procedure and the medication (3:301).

As a means of establishing the relationship between the correlation of class instruction and ward practice the schools were classified according to those providing identical equipment for classroom instruction and during ward practice. Twenty-six of the 44 schools that participated in the examination of 1931-1932 provide identical equipment. These schools contributed 775 examinees, of whom 15 or 1.9% failed, causing 29 or .4% subject failures. Of the 18 schools of the non-identical-equipment group, there were 157 examinees; 14 or 8.9% failed, causing 36 or 2.2% subject failures. These relationships shown in Table V, page 57, and Figure 4, page 58.

These findings would seem to indicate the advisability of a more general correlation of class instruction and ward practice through identical equipment. Classroom instruction not closely related to the clinical experience of the student will not function (17:58). Again, the importance of the increase of failures in both identical and the non-identical group during the session 1932-1933 loses some of its significance through the consideration of the fact that the marking of the papers during this session was much more rigorous than in 1931-1932.
TABLE V

FAILURES AS RELATED TO IDENTICAL AND NON-IDENTICAL EQUIPMENT IN CLASSROOMS AND WARDS IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td></td>
</tr>
<tr>
<td>Identical</td>
<td>26</td>
<td>775</td>
<td>15</td>
<td>1.9</td>
<td>7750</td>
</tr>
<tr>
<td>Non-Identical</td>
<td>18</td>
<td>137</td>
<td>14</td>
<td>8.9</td>
<td>1570</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td></td>
</tr>
<tr>
<td>Identical</td>
<td>28</td>
<td>723</td>
<td>65</td>
<td>9.0</td>
<td>7230</td>
</tr>
<tr>
<td>Non-Identical</td>
<td>18</td>
<td>154</td>
<td>27</td>
<td>16.46</td>
<td>1640</td>
</tr>
</tbody>
</table>
FAILURES AS RELATED TO IDENTICAL AND NON-IDENTICAL EQUIPMENT IN CLASSROOM AND WARD IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th></th>
<th>Student Failures</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-1932</td>
<td>1.9%</td>
<td>2.3%</td>
</tr>
<tr>
<td>1932-1933</td>
<td>1.6%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

**Identical**

<table>
<thead>
<tr>
<th></th>
<th>1.9%</th>
<th>9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-1932</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1932-1933</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Non-Identical**

<table>
<thead>
<tr>
<th></th>
<th>8.9%</th>
<th>16.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-1932</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1932-1933</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teaching Facilities in 46 Schools

Adequate teaching facilities increase teaching efficiency in the instructor and the power of assimilation in the student. The term "teaching facilities" is here used to designate adequateness in size and number of classrooms and in provisions for visual aids, such as skeletons, manikins, slides, charts, scales, specimens, microscopes, crude and prepared drugs, and other demonstrative material. Of the 46 schools used in this study, 31 are credited by the state department with having good teaching facilities, 11 with having fair, and 4 with having poor facilities.

From September, 1931 to June, 1932, 29 of the 31 schools credited with having good teaching facilities presented 794 examinees. Of these 18 or 2.3% failed, causing 37 or .5% subject failures. The 11 schools with fair facilities sent 114 examinees, of whom 7 or 6.1% failed, causing 18 or 1.2% subject failures. The remaining 4 schools with their poor teaching facilities presented 24 examinees, 4 or 16.7% of whom failed, causing 10 or 4.6% subject failures.

During the second session a similar relationship existed. The 31 schools with good facilities sent 744 examinees. Of these 70 or 9.4% failed, causing 125 or 1.7% subject failures. The 11 schools with fair teaching facilities presented 117 examinees and 17 or 14.5% failed, causing 31 or 2.6% subject failures. The remaining 5 schools sent 26 examinees and 5 or 19.2% failed, causing 8 or 3.1% subject failures.

In each instance the more favorable teaching conditions appear to be directly related to more successful state-board accomplishment, and
Such evidence would seem to point to the desirability of improving the teaching facilities in each instance. Each group, in the second session, sustained a greater percentage of student failures and subject failures than were sustained by the corresponding group in the first session. This increase of failures in the second session, as has been explained, was due to the more accurate evaluation of the content of the examination papers during the second session. These relationships are shown in Table VI, page 61, and Figure 5, page 62.
TABLE VI

FAILURES AND TEACHING FACILITIES IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>29</td>
<td>794</td>
<td>18</td>
<td>2.3</td>
<td>7940</td>
</tr>
<tr>
<td>Fair</td>
<td>11</td>
<td>114</td>
<td>7</td>
<td>6.1</td>
<td>1140</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>24</td>
<td>4</td>
<td>16.7</td>
<td>240</td>
</tr>
</tbody>
</table>

1932-1933

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>31</td>
<td>774</td>
<td>70</td>
<td>9.4</td>
<td>7740</td>
</tr>
<tr>
<td>Fair</td>
<td>11</td>
<td>117</td>
<td>17</td>
<td>14.5</td>
<td>1170</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>26</td>
<td>5</td>
<td>19.2</td>
<td>260</td>
</tr>
</tbody>
</table>
Figure 5

FAILURES AND TEACHING FACILITIES IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>2.3%</td>
<td>.5%</td>
<td>9.4%</td>
<td>14.5%</td>
<td>19.2%</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>6.1%</td>
<td>1.7%</td>
<td>1.6%</td>
<td>2.6%</td>
<td>4.2%</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>.5%</td>
<td>.5%</td>
<td>3.1%</td>
<td>3.1%</td>
<td>3.1%</td>
<td></td>
</tr>
</tbody>
</table>

Student Failures | Subject Failures
Identity of Classroom Instructor and Clinical Supervisor in 46 Schools of Nursing

Clinical experience and student-to-patient ratio can be of little utility if those responsible for the student’s nursing service do not make the time spent in the ward of educational value, nor can classroom instruction be effective if not closely related to the clinical experience of the student (17:58). Time spent in following routine practices long after they cease to be of educational value, to the sacrifice of the more scientific procedures, cannot promote the efficiency of the nurse. We have as yet no accurate determinant with which to evaluate the ward as an educational laboratory (9:1046).

In order that ward service may promote the student's efficiency, the clinical supervisor and the head nurse must be good teachers as well as good nurses, and they must like to teach. It is only through seeing good nursing that the student can become a good nurse. Good bedside nursing is the cornerstone of the student nurse's education (35:1432).

Efficient correlation of theoretical principles with ward technique demands an interest in the nurse and her nursing service on the part of those who are directing the student's experience. The most important, and probably the most impressive, instruction is that which the student nurse receives on duty under the direction of the floor supervisor (52:357). Since classroom instruction and clinical experience should be definitely related, it is preferable that the supervisors of each clinical department
be responsible for the classroom teaching as well as the nursing practice in their special service (67:854). Where the ward supervisor is not specifically prepared for teaching, the instructor of nursing procedures is usually in the best position to maintain this correlation. When the classroom teacher and the clinical instructor are identical the best results follow (44:357).

In an attempt to estimate the possible influence of classroom teaching and correlated ward supervision and their relation to the failures of our state examinations, the schools were classified according to their application of classroom instruction and their clinical practices.

Where this correlation has been established by well-formulated follow-up teaching, the application of theoretical instruction to clinical experience was designated by the state inspector as "good;" where the application is only incidental, as "poor," as shown in Table VII, page 66, and Figure 6, page 67.

Of the 44 schools under consideration for the session of 1931-1932, 25 provided correlation of theory and practice by a full-time follow-up teacher. These schools presented 741 examinees; 19 or 2.6% of these failed, causing 39 or .5% subject failures. The 18 schools which did not provide adequate correlation contributed 191 examinees; 10 or 5.2% failed, causing 26 or 1.4% subject failures.

During 1932-1933, 27 schools with a correlating instructor contributed 668 of the examinees; 63 or 9.4% failed, causing 114 or 1.8% subject failures. At the same time 19 schools with no follow-up
instructor contributed 218 of the examinees, 29 or 13.3% of whom failed, causing 46 or 2.1% subject failures.

Therefore, the supposition that a closer, a more specific, and a more inclusive correlation of classroom teaching to nursing practice would still further reduce the number of failures seems justified. In this regard, however, we must not overlook the fact that hurried trips through wards may in some instances have been classified as supervision, when in reality they were scarcely more than very superficial inspection, and that it is not possible to determine how many clinical instructors have the right conception of their responsibility to the student and future graduate nurse (40:1058).

Here again we see that the number and percent of student failures and subject failures are greater in the second than in the first session. This relationship is shown in Table VII, page 66, and Figure 6, page 67.
<table>
<thead>
<tr>
<th>Application</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>26</td>
<td>741</td>
<td>19</td>
<td>2.6</td>
<td>7410</td>
</tr>
<tr>
<td>Poor</td>
<td>18</td>
<td>191</td>
<td>10</td>
<td>5.2</td>
<td>1910</td>
</tr>
<tr>
<td>Good</td>
<td>27</td>
<td>668</td>
<td>63</td>
<td>9.4</td>
<td>6680</td>
</tr>
<tr>
<td>Poor</td>
<td>19</td>
<td>218</td>
<td>29</td>
<td>13.3</td>
<td>2180</td>
</tr>
<tr>
<td>Subject Failures</td>
<td>Student Failures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1931-32</strong></td>
<td><strong>1932-33</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>2.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>1.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4%</td>
<td>5.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Subject Failures: 1.7% for 1931-32 and 1.4% for 1932-33.
Student Failures: 9.4% for 1931-32 and 5.2% for 1932-33.
A careful evaluation of the student's high-school records should be made before admission. The correlation between nursing-theory grades and ultimate failure at state examinations would suggest the advisability of the early elimination of the failing student. The student of meagre academic preparation is not likely to be successful in her nursing-theory grades (44:990). This consideration suggests the advisability of a careful scrutiny of the high-school preparation of the students failing in their state-board examinations during the two years under consideration.

During the session 1931-1932, of the 29 students who failed in the examinations, 26 were high-school graduates, while 3 had not completed high school. A comparison of the school grades show that 13 were graded as B students, 3 as B-, 9 as C, 2 as C-, and 2 as D. Just how their high-school grades correspond with the student's ability, it is not possible to determine. Neither has the writer any evidence concerning the type of high school from which the applicant graduated. The type of high school from which the student graduated should be considered in student selection (33:13). Of the students who failed in the second session, 24 had completed high school and 5 had had two years. Of this number, 16 had had Latin, 10 chemistry, 7 biology, and 10 commercial courses.

The 92 students who failed in 1932-1933 present a more pronounced disparity of credits. Data submitted show 1 university graduate, and 2
high-school students graded as A, 29 as B, 4 as B-, 42 as C, 4 as C-, 10 as D, and 1 as D-. Of these, 66 had completed high school, 14 had had 3 years of high school, and 11 had had two. Of this same number 49 had taken Latin, 28 chemistry, 21 biology, and 11 commerce.

The curricular content of the high-school course would seem significant in the light of further intellectual achievement. Latin, emphasized as helpful in mastering the scientific and technical terminology of the nursing courses, forms a part of 21 of the students' high-school courses. Chemistry was studied by 10 of the students and biology by 8. The C and B averages do not disclose just how well these students mastered Latin and these science courses, nor why some students turned to the commercial course. It is a known fact that failing high-school students are frequently directed into vocational courses.

Since previous educational attainment, as to grade and subject content, seems to have some bearing on student success, it was considered advisable to examine the high-school credentials of 50 of the successful and 50 of the failing examinees who were presented during the two years under consideration. In order to determine the relationship between academic achievement and success in nursing theory, a further consideration as to the possible influence of a more careful student selection suggested the study of the high-school credentials obtained by random sampling of 25 students from the successful schools, and of an equal number of successful students from the schools having had failures during these sessions.

A comparison of these credentials shows that, of the 25 students
of the schools having had no failures, one had had only 2 years of high
school, one 3 years, and 23 had completed the high-school course. Three
of these students had attained an A average, 11 B, 19 C and 2 a D average.
Nineteen of these students had studied Latin, 17 chemistry, 9 biology,
and 7 had followed the commercial course. Of the 25 successful students
of the schools that had sustained failures, 3 had completed the second
year of high school; 3, the third year of high school; and 19 had the
entire high-school course. None of these students had attained an A aver-
age, 2 were of a B average, 14 were C students and 9 were D students.
Fifteen of these students had studied Latin; eight, chemistry; seven,
biology; and 19 had followed the commercial course. Totaling the results
for the 25 successful students of the successful schools and the 25 suc-
cessful students of the unsuccessful schools, of the fifty students, we
have 4 students with 2 years of high school, 4 with 3 years and 42 who
had completed the high-school course. Three of these students were A
students, 13 were B, 23 were C, and 11 were D students. Thirty-four had
studied Latin, 25 chemistry, 16 biology, and 26 commercial subjects. From
the random sampling of the failing students of the two sessions, four were
found to have had only two years of high school, 5 three years of high
school, and 38 to have completed their high-school courses. The high-
school graduates among the successful students outnumbered those of the
failing students by four. Among these failing students the high-school
averages are: 1 A, 12 B's, 26 C's, and 11 D's. Among the subjects fol-
lowed by the failing students were found Latin studied by 25, chemistry
by 10, biology by 12, and commercial by 13. The curricular content of
The academic preparation of the failing students drawn haphazardly was more frequently made up of subjects other than those recommended as helpful in promoting theoretical success in nursing theory than was the preparation of the successful students (16:35). This relationship is shown in Table VIII, page 72.
A COMPARISON OF FIFTY SUCCESSFUL AND FIFTY UNSUCCESSFUL STUDENTS IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Schools</th>
<th>Students</th>
<th>Students</th>
<th>Years</th>
<th>Grades</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>25</td>
<td>1</td>
<td>1</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>25</td>
<td>3</td>
<td>3</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Total Successful</td>
<td>50</td>
<td>4</td>
<td>4</td>
<td>42</td>
<td>3</td>
</tr>
<tr>
<td>Failing</td>
<td>50</td>
<td>4</td>
<td>5</td>
<td>38</td>
<td>1</td>
</tr>
</tbody>
</table>
This comparison seems to justify skepticism regarding the value of high-school transcripts which include vocational subjects. Students of vocational subjects may do as well in general education as those having taken the college preparatory courses, but the student with a foundation in science and with some training in scientific thinking has a greater chance for success in the field of nursing education, which is based upon scientific knowledge and investigation. Nevertheless, if these vocationally trained students had accomplished their high-school courses with better grades, they might not have sustained the failures recorded (31:737). Even a limited knowledge of Latin promotes greater ease in mastering and interpreting difficult terminology. The Grading Committee's disapproval of the substitution of commercial courses for the cultural and scientific high-school training should induce each educational director to consider with what success her former students have accomplished their theoretical courses and what has been the results of their state examinations (16:35).

Our schools of nursing have admitted students whose high-school records show repeated failures. Are we not justified in asking if our public-school teachers, in the belief that nursing requires little, if any, intelligence, do not sometimes give passing grades to students who should be failed, and then direct them into the nursing profession (69:682)?

Student Selection on Basis of I.Q. in 46 Schools

Adequate curricular content and a well-prepared faculty avail
little in student success without properly selected student personnel.
The most excellent faculty, the most effective teaching facilities, and
an active curriculum cannot produce the efficient graduate from a student
of mediocre ability and personality (69:681). A program of mental and
aptitude tests when administered and interpreted by experts might elimi-
nate some of our failures (67:567).

The need for intelligently educated nurses will not diminish.
therefore the schools of nursing must prepare to produce the graduate
nurse who will be capable of developing new ideas to parallel the ever-
changing scientific discoveries so necessary to the welfare of humanity.
There is an increasing demand for nurses whose intelligence, technical
skill, and scientific knowledge enable them to make adequate adjustments
to the changing needs of their profession (49:910).

Tests designed to measure mental ability and professional apti-
tudes are not sufficient. Many students "who seem bright enough mentally"
because of the unusual situations of the student nurse's life, appear to
have an unreasonable amount of difficulty (8:1031). Further testing
might suggest the correction of faulty reading habits, and the conse-
quent elimination of textbook and reading-reference difficulties. We
need more numerous and more specific aptitude tests carefully prepared
and standardized. The tests now available are found to be little used
in our schools of nursing. Of the 46 accredited schools, only 8, as
shown by data collected, have employed any type of testing in student
selection.

In an effort to ascertain the influence of better student
selection on the success of the state examinations, the 46 schools under consideration were classified according to those having used intelligence or general ability tests as a basis for admission, and those not having these tests. Of the 44 schools represented in the state-board examinations of 1931-1932, 36 had not employed tests of either type, while 8 used one or both types of tests in student selection.

During the session of 1931-1932, the 36 schools not using any type of testing contributed 663 examinees, and 22 or 3.3% of these failed, causing 55 or .8% subject failures. The eight schools using tests in student selection sent 269 of the total number of examinees. Seven or 2.7% of this group failed, causing 10 or .4% subject failures.

A like result is shown by the tabulation of the 46 schools that participated in the examinations of 1932-1933. The schools using no tests, 36 of the 46 schools, contributed 625 of the examinees, of whom 80 or 12.8% failed, causing 142 or 2.3% subject failures. The eight schools using tests sent 262 or 29.5% of the examinees, and 12 or 4.6% failed, causing 22 or .8% subject failures.

These findings seem to indicate the need of intelligence and general-ability testing in the selection of applicants, even though Miss Densford gives this warning: "Don't put undying faith in the reliability of mental or other testing" (20:558). Testing during the preliminary period only is not sufficient. Personality and general-aptitude tests should be used after the student enters the particular situations characteristic of nursing service, and the scale and method of testing should be so designed as to be adequate to measure the thing being tested. The
use of scales and methods based on principles of efficiency applicable in a factory but not in dealing with human beings do much harm and do not promote the advancement of the nurse. Insistence upon this type of test causes the student to lose the ideal attitude toward the theoretical principle involved and toward the individuality of the patient. Yet such tests, properly administered and interpreted, may be instruments for the early elimination of the mediocre student who if retained would in all probability fail in the state examinations. The fact that there is a larger group of successful students from the schools using the tests as a basis for admission than from those not using such tests, cannot be relied upon as a positive evidence of group superiority. In the first place, the number is not large enough to be decisive; and in the second place, the greater success of the students from these schools may be due to the fact that the schools which use scientific methods of careful selection are more likely to place their students in an educational atmosphere conducive to proper study habits and to intellectual achievement. These relationships are shown in Table IX, page 77, and Figure 7, page 78.
<table>
<thead>
<tr>
<th>I.Q.</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
</tr>
<tr>
<td>Basis</td>
<td>8</td>
<td>269</td>
<td>7</td>
<td>2.6</td>
<td>2690</td>
</tr>
<tr>
<td>Non-Basis</td>
<td>36</td>
<td>663</td>
<td>22</td>
<td>3.3</td>
<td>6630</td>
</tr>
<tr>
<td>Basis</td>
<td>8</td>
<td>262</td>
<td>12</td>
<td>4.6</td>
<td>2620</td>
</tr>
<tr>
<td>Non-Basis</td>
<td>38</td>
<td>625</td>
<td>80</td>
<td>12.8</td>
<td>6250</td>
</tr>
</tbody>
</table>
Figure 7

FAILURES AND ADMISSION ON BASIS OF I.Q. IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th></th>
<th>Basis 1931-1932</th>
<th>Basis 1932-1933</th>
<th>Non-Basis 1931-1932</th>
<th>Non-Basis 1932-1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Failures</td>
<td>2.6%</td>
<td>4.6%</td>
<td>3.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Subject Failures</td>
<td>.4%</td>
<td>.8%</td>
<td>.8%</td>
<td>.8%</td>
</tr>
</tbody>
</table>
Preparation of the Full-Time Instructor in 46 Schools

The type of faculty preparation has a definite bearing on the effectiveness with which the curriculum operates. The persons activating and stimulating the curriculum must not only be interested in the nursing service and the education of the student, but must also have a real love of study and the academic and clinical preparation suited to the instructional duties intrusted to them (17:33).

Owing to lack of data, a classification of the specific type of preparation of the full-time instructors has not been possible in this study. But in an attempt to ascertain the possible influence of the instructor's preparation on the successes and failures of the students, the academic qualifications of instructors in terms of length of education have been obtained and the schools have been classified from that standpoint.

The Standard Curriculum recommends that every school employ at least one full-time instructor, or, preferably, two well-prepared instructors. One of these instructors should be responsible for the nursing procedures and clinical experience of the students, and the other should teach the elementary sciences (16:32). Yet thirty-one of our schools of nursing have but one full-time instructor, three have only one part-time instructor, while thirteen have two or more full-time instructors.

The instructors of the schools of nursing should have the same qualifications as the instructors of other schools of equal educational
The Grading Committee advises that every graduate nurse on our nursing school faculty, including supervisors and head nurses, be a college graduate (17:50).

The data collected show 77 full-time instructors responsible for the student education of our 46 accredited schools. Of these 77, 23 are college graduates; 35 have had some college, some of which consists of summer courses; 16 are high-school graduates; and 2 have had less than high-school preparation. In each instance the full-time instructor is a registered nurse. In no instance is the full-time instructor a doctor.

In an attempt to ascertain the possible influence of the preparation of the instructor on the state-board failures, the schools were classified according to: High School, Some College, and College Graduate preparation.

Tabulation showed that for the session 1931-1932, 10 of the 44 schools intrusted the education of their students to instructors having had not more than a high-school education. These schools contributed 89 of the examinees, 5 or 5.6% of whom failed, causing 15 or 1.7% subject failures. Twenty-one of these schools employed instructors with some college preparation. These schools contributed 342 of the examinees, 11 or 3.2% of whom failed, causing 26 or .8% subject failures. The 13 schools with college-graduate instructors contributed 501 of the examinees, and 13 or 2.5% failed, causing 24 or .4% subject failures.

A like study of the session 1932-1933 shows that from the 11 schools employing instructors of only high-school preparation, 95 examinees participated in the state examinations and 15 or 15.8% of these
students failed, causing 22 or 2.3% subject failures. From the 22 schools employing instructors of some college preparation, 349 examinees participated in the examinations, 37 or 10.6% of whom failed, causing 68 or 1.9% subject failures. The 13 remaining schools with college-graduate instructors sent 443 examinees and 40 or 9% failed, causing 74 or 1.7% subject failures.

In each instance in the sessions under consideration, there is a lower percentage of student failures and subject failures in relation to better-prepared instructors, and student failures and subject failures are greater in the second session than in the first. This relationship is shown in Table X, page 82, and Figure 8, page 83. This relationship seems to indicate in both instances the advisability of better-prepared instructors as a possible means of eliminating failures.
### TABLE X

FAILURES AND FULL-TIME INSTRUCTOR'S PREPARATION IN 46 SCHOOLS OF NURSING

#### 1931-1932

<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>10</td>
<td>89</td>
<td>5</td>
<td>840</td>
<td>15</td>
</tr>
<tr>
<td>Some College</td>
<td>21</td>
<td>342</td>
<td>11</td>
<td>3420</td>
<td>26</td>
</tr>
<tr>
<td>College Graduate</td>
<td>13</td>
<td>501</td>
<td>13</td>
<td>5010</td>
<td>24</td>
</tr>
</tbody>
</table>

#### 1932-1933

<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Total Subject Examinations</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>11</td>
<td>95</td>
<td>15</td>
<td>950</td>
<td>22</td>
</tr>
<tr>
<td>Some College</td>
<td>22</td>
<td>349</td>
<td>37</td>
<td>3490</td>
<td>68</td>
</tr>
<tr>
<td>College Graduate</td>
<td>13</td>
<td>443</td>
<td>40</td>
<td>4430</td>
<td>74</td>
</tr>
</tbody>
</table>
Figure 8

FAILURES AND FULL-TIME INSTRUCTOR'S PREPARATION IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th></th>
<th>Student Failures</th>
<th>Subject Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>5.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>1931-32</td>
<td>1932-33</td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>3.2%</td>
<td>0.7%</td>
</tr>
<tr>
<td>1931-32</td>
<td>1932-33</td>
<td></td>
</tr>
<tr>
<td>College Graduate</td>
<td>2.5%</td>
<td>0.4%</td>
</tr>
<tr>
<td>1931-32</td>
<td>1932-33</td>
<td></td>
</tr>
</tbody>
</table>
Curricular Hours in 46 Schools of Nursing

Since the amount of time given to the classroom instruction in each subject will of necessity influence the power of assimilation of the curricular content, a definite study of the curricular hours of the subjects causing failures would seem worthwhile.

Failures and Classroom Hours Assigned to Surgery

The number of curricular hours recommended for the adequate instruction of the student in surgery is placed at 90 hours, and this time allotment includes surgery specialties and emergencies. In our schools we find that the number of hours actually given ranges from 20 in one school to 140 in another school. In this section we will refer to the 36 schools allotting 90 or less than 90 curricular hours to surgery as "Standard or Less," and the 8 schools exceeding 90 hours as "Major."

The variation of curricular hours is shown in Figure 9, page 85.

Thirty-six schools classified as "Standard or Less" contributed 714 examinees during the session of 1931-1932, of whom 9 or 1.3% failed. The 8 schools classified as "Major" contributed 218 examinees, of whom 1 or .5% failed. During the second session 38 "Standard or Less" schools contributed 681 examinees, and of these 23 or 3.4% failed. The 8 "Major" schools contributed 206 examinees, of whom 6 or 2.9% failed.

In each instance the failures were greater in relation to the lesser curricular hours and were greater during 1932-1933 than in the former session. The greater success of the schools of the major curricula
CLASSROOM HOURS ASSIGNED TO SURGERY IN 46 SCHOOLS OF NURSING

Figure 9

Number of Hours

Standard or Less

Major
justifies the opinion of our leading educators that the hours demanded by the Committee can be considered the minimum standard, and every school should strive to advance its classroom hours to the prescribed standard. This relationship is shown in Table XI, page 87, and Figure 10, page 88.
### TABLE XI

**FAILURES AND CLASSROOM HOURS ASSIGNED TO SURGERY IN 46 SCHOOLS OF NURSING**

#### 1931-1932

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>36</td>
<td>714</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>Major</td>
<td>8</td>
<td>218</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

#### 1932-1933

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>38</td>
<td>681</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Major</td>
<td>8</td>
<td>206</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.9</td>
</tr>
</tbody>
</table>
Figure 10

FAILURES AND CLASSROOM HOURS ASSIGNED TO SURGERY
IN 46 SCHOOLS OF NURSING

1931-1932

1932-1933

Standard or Less

Major

1.3%

3.4%

2.9%

.5%
Failures and Classroom Hours Assigned to Dietetics

Dietetics, considered in relation to all curricular hours and in both years under investigation, caused a low percentage of failures. Dietetics is of utmost importance to the well-being of mankind both in the prevention and in the treatment of disease. Scientific discoveries necessitate constant dietary experimentation and adjustment to meet abnormal conditions in organic and deficiency diseases. The students of our accredited schools seem to be adequately prepared, in as far as the state examinations have determined.

The classroom hours as allotted to dietetic instruction in the 46 schools range from 45 to 110 hours. This variation is shown in Figure 11, page 90.

During the 1931-1932 session the 27 schools of the Standard or Less curricular hours, which range from 45 to 60 hours, contributed 470 examinees. Three or .6% failed. The 17 schools of the "Major" curricula, which ranged from 69 to 111, contributed 462 examinees, and of this number 3 or .6% failed.

During the 1932-1933 session the 29 schools of the lesser curricular hours contributed 470 examinees of whom 3 or .7% failed. From the "Major" curricula schools of the second session, there is an increase in the percent of failure, though in each instance the number of failures remained unchanged. There were 3 or .7% student failures. This relationship is shown in Table XII, page 91.
Figure 11

CLASSROOM HOURS ASSIGNED TO DIETETICS IN 46 SCHOOLS OF NURSING

Number of Schools

26
24
22
20
18
16
14
12
10
8
6
4
2

Number of Hours

45
60
70
80
90
100
110

Standard or Less

Major
### TABLE XII

FAILURES AND CLASSROOM HOURS ASSIGNED TO DIETETICS IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>27</td>
<td>470</td>
<td>3</td>
<td>.6</td>
</tr>
<tr>
<td>Major</td>
<td>17</td>
<td>462</td>
<td>3</td>
<td>.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>29</td>
<td>470</td>
<td>3</td>
<td>.6</td>
</tr>
<tr>
<td>Major</td>
<td>17</td>
<td>417</td>
<td>3</td>
<td>.7</td>
</tr>
</tbody>
</table>
Failures and Classroom Hours Assigned to Anatomy

From the figures already presented, it is evident that anatomy leads all other subjects in frequency of failures. The records examined showed not only a greater number of failures, but also a lower general average for the successful student; this occurred more frequently in anatomy than in the other subjects. A consideration of the relatively greater number of failures and the lower general average suggests, among other causes, the relatively greater inherent difficulty in the subject matter.

The wide scope of the subject matter in the study of anatomy necessitates an extensive and intensive study of gross and microscopic structure. Furthermore, a knowledge of the functions of the different systems and their interrelation in the welfare of the entire patient must be attained as a fundamental preparation for the clinical subjects. This subject is introduced in the beginning of the preliminary period before the student has become adjusted to her environmental conditions.

A knowledge of anatomy and physiology has been considered fundamental to nursing education since the beginning of the most meagre of nursing curriculum. The course as outlined by the National Committee is expected to give the student an appreciation and a working knowledge of the normal human body as an efficient machine (16:65).

Very early in her nursing service the student must know the interdependence of the different structures and systems of the body, that she
may be specific in her habits of observation and logically scientific in her reasoning. Student instruction exists for the primary purpose of enabling the nurse to give the best possible care to those who are sick. The student's dexterity and gentleness, her skill and assurance, are largely due to her thorough understanding of anatomy (24:62). She gains through the curricular activities an understanding of anatomy and physiology in their different relations.

The number of curricular hours recommended by the Educational Committee of the National League of Nursing Education is 90. This is only a compromise and contrary to the unanimous judgment in favor of 120 hours (28:1077). In considering the number of curricula hours allotted by our schools, we note a surprising disparity. Curricular hours in anatomy show a range from 45 hours in one school to 210 in another. The one school which requires 210 hours exceeds all other schools by 150 hours. This variation is shown in Figure 12, page 94. The number of curricular hours given to anatomy and physiology by the 46 accredited schools total 4,792 hours or 11.6% of the total number of curricular hours. In an attempt to determine the possible influence of curricular hours, the schools were again classified "Standard or Less" and "Major".

For the session 1931-1932, 24 of the 44 schools followed "Standard or Less" curricula in anatomy. These 24 schools contributed 327 of the examinees, of whom 16 or 4.9% failed. Twenty of the 44 schools followed "Major" curricula and contributed 605 of the examinees and 12 or 2% of the failures. For the year 1932-1933, 46 schools were represented. Twenty-six schools followed "Standard or Less" curricula and contributed
Figure 12

CLASSROOM HOURS ASSIGNED TO ANATOMY IN 46 SCHOOLS OF NURSING

Number of Schools

<table>
<thead>
<tr>
<th>Number of Schools</th>
<th>22</th>
<th>20</th>
<th>18</th>
<th>16</th>
<th>14</th>
<th>12</th>
<th>10</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
</tr>
</thead>
</table>

Number of Hours

<table>
<thead>
<tr>
<th>Number of Hours</th>
<th>45</th>
<th>75</th>
<th>85</th>
<th>95</th>
<th>105</th>
<th>115</th>
<th>125</th>
<th>135</th>
<th>145</th>
<th>210</th>
</tr>
</thead>
</table>

Standard or Less

Major
examinees, of whom 40 or 11.5% failed. Twenty schools followed "Major" curricula and contributed 539 examinees, of whom 33 or 6.1% failed. This relationship is shown in Table XIII, page 96, and Figure 13, page 97.

It is evident that there were fewer failures in anatomy among the students from the schools following "Major" curricula during both sessions under consideration. This cannot mean that the greater number of curricular hours alone was responsible for the success of the students in these groups. Some other cause or causes must have been operative in these failures. The circumstances under which this curriculum operated during each session will be given further consideration.
TABLE XIII

FAILURES AND CLASSROOM HOURS ASSIGNED TO ANATOMY IN

46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Standard or Less</td>
<td>24</td>
<td>327</td>
<td>16</td>
</tr>
<tr>
<td>Major</td>
<td>20</td>
<td>605</td>
<td>12</td>
</tr>
</tbody>
</table>

1932-1933

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Standard or Less</td>
<td>26</td>
<td>348</td>
<td>40</td>
</tr>
<tr>
<td>Major</td>
<td>20</td>
<td>539</td>
<td>33</td>
</tr>
</tbody>
</table>
Figure 13

FAILURES AND CLASSROOM HOURS ASSIGNED TO ANATOMY
IN 46 SCHOOLS OF NURSING

1931-1932

1932-1933

Standard or Less

11.5%

4.9%

Major

6.1%

2%
Failures and Classroom Hours Assigned to Materia Medica

A knowledge of materia medica, including drugs and solutions, is an essential requisite to the student and to the graduate nurse. She must be familiar with the common drugs and must have a working knowledge of their preparation, and an accurate and intelligent knowledge of their administration and their prophylactic and therapeutic uses. One important factor to be considered in relation to failure in this subject is the intrinsic difficulties in the content of the subject matter. In 27 schools materia medica is allotted to the freshman year. Many new and difficult scientific terms of anatomy, of bacteriology, of technical procedures, etc., have scarcely been mastered when students are introduced to the fundamental concepts related to the source, nature, qualitative and quantitative characteristics of much unfamiliar medicinal material.

The purpose of nursing education is to make the nurse an intelligent co-worker with the physician in the medical service (16:98). With the constant introduction of numerous new types of drug therapy, materia medica becomes progressively more difficult. For each drug administered, the nurse must know the minimum, average, and lethal doses, and the various vehicles by which they may be given. Such skill cannot be expected without intensive study and prolonged experience. Yet, although the Standard Curriculum allots from 45 to 50 hours, the curricular hours of our schools range from 20 in one school to 105 hours in another. This variation is shown in Figure 14, page 99. The curricular hours in
Figure 14

CLASSROOM HOURS ASSIGNED TO MATERIA MEDICA IN 46 SCHOOLS OF NURSING

Number of Schools

<table>
<thead>
<tr>
<th>Number of Hours</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>70</td>
<td>8</td>
</tr>
<tr>
<td>80</td>
<td>6</td>
</tr>
<tr>
<td>90</td>
<td>4</td>
</tr>
<tr>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>110</td>
<td>2</td>
</tr>
</tbody>
</table>

Standard or Less | Major
materia medica were divided, as was done above, into "Standard or Less" and "Major." Just what influence this disparity of theoretical hours may have on the success of our students is of interest in this study.

It was found that, of the 44 schools participating in the examination of the session 1931-1932, 18 schools followed "Standard or Less" curricula. These schools contributed 287 examinees, of whom 8 or 2.7% failed. The remaining 26 schools followed "Major" curricula. These schools contributed 645 examinees, and 10 or 1.5% of these failed.

During the session 1932-1933, 18 schools following a "Standard or Less" curriculum sent 296 examinees. Thirteen or 4.4% failed. During the session 28 of the 46 schools followed "Major" curricula; these schools sent 591 examinees, and 42 or 7.1% failed. This relationship is shown in Table XIV, page 101 and Figure 15, page 102.

The students of the "Major" curricula were the more successful during the first session investigated, but they sustained more failures during the second session. This cannot mean that the greater number of curricular hours was responsible for success in the former instance. It is evident that the students of the "Major" curricula of the second session lack requisite knowledge to a greater extent than did those of the lesser curricular hours. The nurse who does not possess a sufficient knowledge of materia medica cannot give good medical service. The inadequate knowledge of materia medica as shown here seems to justify the belief that more emphasis should be laid on better medical nurse instruction in the classroom, which instruction must be correlated with the nursing service in the ward (17:123). This knowledge should be possible
### TABLE XIV

**FAILURES AND CLASSROOM HOURS ASSIGNED TO MATERIA MEDICA IN 46 SCHOOLS OF NURSING**

#### 1931-1932

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>18</td>
<td>837</td>
<td>8</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>26</td>
<td>645</td>
<td>10</td>
<td>1.5</td>
<td></td>
</tr>
</tbody>
</table>

#### 1932-1933

<table>
<thead>
<tr>
<th>Curricula</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or Less</td>
<td>18</td>
<td>296</td>
<td>13</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>28</td>
<td>591</td>
<td>42</td>
<td>7.1</td>
<td></td>
</tr>
</tbody>
</table>
Figure 15

FAILURES AND CLASSROOM HOURS ASSIGNED TO MATERIA MEDICA

IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Year</th>
<th>Standard or Less</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-1932</td>
<td>2.7%</td>
<td>4.4%</td>
</tr>
<tr>
<td>1932-1933</td>
<td>1.5%</td>
<td>7.1%</td>
</tr>
</tbody>
</table>
through well planned follow-up teaching. Curricular hour allotment alone cannot produce an efficient curriculum.

Anatomy and materia medica have caused the greater percentage of failures during the two years under investigation; therefore, they will be made the salient point during the remainder of this study. Anatomy caused 43.1% of the failures during the session of 1931-1932 and materia medica 27.7%. During this session anatomy and materia medica together caused 70.8% of the total failures.

During the 1932-1933 session, anatomy caused 44.5% of the total failures, while materia medica caused 33.5%. Together these subjects caused 78% of all failures. And "a discerning perception as to which parts give the greater amount of difficulty will be of great value in deciding where emphasis must be placed" (14:82).

The increase in frequency of failures in anatomy was not only absolutely greater—an increase from 28 to 73—but what is even more significant, it was relatively greater, being an increase from 3% to 8.2% for the two years respectively, a difference of 5.2%. Materia medica shows a similar though not as extensive an increase, as was shown in anatomy; i.e., an increase from 18 or 1.9% to 55 or 6.2%, a difference of 4.3%. The relationship of subject failures is shown in Table XV, page 104, and Figure 16, page 105.
### TABLE XV

**FAILURES OF TOTAL NUMBER OF SUBJECTS IN 46 SCHOOLS OF NURSING**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Per Cent</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Examinations</td>
<td>9320</td>
<td></td>
<td>867</td>
<td></td>
</tr>
<tr>
<td>Subjects Failed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatomy</td>
<td>28</td>
<td>43.1</td>
<td>73</td>
<td>44.5</td>
</tr>
<tr>
<td>Materia Medica</td>
<td>18</td>
<td>27.7</td>
<td>55</td>
<td>33.5</td>
</tr>
<tr>
<td>Surgery</td>
<td>10</td>
<td>15.4</td>
<td>29</td>
<td>17.7</td>
</tr>
<tr>
<td>Dietetics</td>
<td>6</td>
<td>9.2</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>Communicable Diseases</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Figure 16

FAILURES OF TOTAL NUMBER OF SUBJECTS IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Subject</th>
<th>1932-1933</th>
<th>1932-1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>43.1%</td>
<td>44.5%</td>
</tr>
<tr>
<td>Materia Medica</td>
<td>27.7%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Surgery</td>
<td>15.4%</td>
<td>17.7%</td>
</tr>
<tr>
<td>Dietetics</td>
<td>9.2%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Communicable Diseases</td>
<td>3.1%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Dietetics</td>
<td>1.5%</td>
<td>.5%</td>
</tr>
<tr>
<td>Communicable Diseases</td>
<td>.5%</td>
<td>.5%</td>
</tr>
</tbody>
</table>

1932-1933
Among factors recognized as probably important in this connection are:

(1) Specific qualifications of the teachers of anatomy and materia medica.
(2) Curricular science load.
(3) Remoteness of preparation and opportunities of repetition.

We will now consider these factors as possible causes in the retarding of successful curricular operation.

Failures in Anatomy and Teachers' Qualifications in 46 Schools

The instructor of the sciences and other services should know the subject well. But ability to apply the scientific principles to clinical practices is even more important, and a nurse who is not specifically prepared may be able to teach anatomy and materia medica more effectively to nurses than a more highly qualified instructor who is more interested in the science itself than in its clinical application (17:59). Whenever a science is taught by a college teacher or a physician, a nurse instructor should be associated as laboratory assistant, the former teaching the scientific aspect of the subject, and the latter teaching the nursing aspect (17:59).

This nurse instructor must unite a good scientific knowledge with splendid technical skill. No impression is complete until expressed. Science not closely related to the student's experience will not function (17:66). Only the individual who is primarily interested in nursing education and knows from experience the nurse's needs can effectively adapt.
scientific principles to the ever-varying situations and to the frequently unexpected reactions of the sick to the prophylactic and therapeutic agencies.

A second attempt to determine definitely the qualifications of the teachers of the two sciences responsible for the greater number of failures, with special reference to the Committee's suggestions, resulted in a second listing of teachers from the standpoint of their relation to the subject taught.

In tabulating the data, instructors were classified as Doctor, Registered Nurse, and Teacher in Normal or Secondary Schools. It should be noted that some part-time instructors in schools of nursing are teachers of science in affiliated normal schools or high schools.

The 46 schools were classified according to their teachers' qualifications and the findings were tabulated. During the 1931-1932 session anatomy was taught in 15 schools by a Doctor. These schools contributed 187 examinees, and 10 or 5.3% failed. In 10 schools a Doctor, assisted by a Registered Nurse, taught anatomy; from these schools there were 208 examinees, of whom 6 or 2.9% failed. A registered Nurse taught anatomy in 8 of the schools; 209 examinees were contributed, and 6 or 2.9% failed. The remaining 11 schools were affiliated with a junior college or a secondary technical school; they contributed 328 examinees, of whom 6 or 1.8% failed.

During the 1932-1933 session, the 15 schools depending on Doctors for their student instruction contributed 186 examinees, and 17 or 9.1% failed. The 11 schools which gave instruction through the Doctor and
Registered Nurse combination contributed 225 examinees, of whom 15 or 6.7% failed. The 9 schools assigning anatomy instruction to a Registered Nurse only, contributed 177 examinees, and 18 or 10.2% failed. The 11 with affiliated school instruction contributed 299 examinees, of whom 23 or 7.7% failed. This comparison, as illustrated in Table XVI, page 109, and Figure 17, page 110, shows the affiliated schools with a lower percentage of failures for the first session, and the Doctor and Nurse combination with a lower percentage during the second session. Combining the results of 1931-1932 and 1932-1933, we find that the percentage of failures when the subject was taught by a physician is 7.23%, when taught by the Doctor and Nurse combination, 4.8%, by the Registered Nurse alone 6.5%, and by affiliated schools 4.8%. There is a greater per cent of failure by less than .02% of one per cent--.015%. This relationship is shown in Table XVII, page 111.

A comparison of the results of the two sessions would seem to establish a belief in a better result from the Doctor and Registered Nurse combination, when the Registered Nurse has special preparation for teaching combined with scientific knowledge and clinical experience.
<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Doctor</td>
<td>15</td>
<td>137</td>
<td>10</td>
</tr>
<tr>
<td>Doctor and Registered Nurse</td>
<td>10</td>
<td>208</td>
<td>6</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>8</td>
<td>209</td>
<td>6</td>
</tr>
<tr>
<td>M.S. in Junior College or Technical High School</td>
<td>11</td>
<td>328</td>
<td>6</td>
</tr>
</tbody>
</table>

1932-1933

<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Doctor</td>
<td>15</td>
<td>186</td>
<td>17</td>
</tr>
<tr>
<td>Doctor and Registered Nurse</td>
<td>11</td>
<td>225</td>
<td>15</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>9</td>
<td>177</td>
<td>18</td>
</tr>
<tr>
<td>M.S. in Junior College or Technical High School</td>
<td>11</td>
<td>299</td>
<td>23</td>
</tr>
</tbody>
</table>
FAILURES IN ANATOMY AND TEACHER'S QUALIFICATIONS

IN 46 SCHOOLS OF NURSING

<table>
<thead>
<tr>
<th>Qualification</th>
<th>1931-1932</th>
<th>1932-1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Doctor</td>
<td>5.3%</td>
<td></td>
</tr>
<tr>
<td>Doctor and Registered Nurse</td>
<td>2.9%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>6.7%</td>
<td>10.2%</td>
</tr>
<tr>
<td>M.S. of Junior College or Technical High School</td>
<td>1.8%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Status of Instructor or Instructors</td>
<td>Per Cent</td>
<td>Average</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>1931-1932</td>
<td>1932-1933</td>
</tr>
<tr>
<td>Medical Doctor</td>
<td>5.34</td>
<td>9.13</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>2.87</td>
<td>10.16</td>
</tr>
<tr>
<td>Medical Doctor and Registered Nurse</td>
<td>2.88</td>
<td>6.66</td>
</tr>
<tr>
<td>M.S. of Junior College or of Technical High School</td>
<td>1.82</td>
<td>7.69</td>
</tr>
<tr>
<td>Medical Doctor and Registered Nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S. of Junior College or of Technical High School</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Failures in Materia Medica and Teacher Qualifications in 46 Schools

A study similar to that made of "Failures in Anatomy and Teacher's qualifications," was made of the failures in materia medica. Ten assigned the teaching of materia medica to Doctors. These schools contributed 160 examinees, and 6 or 3.8% failed. Ten schools assigned the instruction of their students to a Doctor and a Registered Nurse. These schools contributed 126 examinees, and 4 or 3.2% failed. A Registered Nurse was responsible for the instruction in this subject in 17 schools. These schools contributed 330 examinees, and 17 or 2.1% failed; the 9 depending upon affiliated schools contributed 316 examinees with .3% failures.

During the 1932-1933 session the students of the 10 schools where the subject was taught by a Doctor alone, contributed 138 examinees; 6 or 4.3% failed. The 10 schools employing a Doctor and a Nurse as instructors contributed 126 examinees, and 4 or 3.2% failed. The 17 schools having a Registered Nurse as a teacher of materia medica contributed 345 examinees; of these 16 or 4.6% failed. Those depending upon affiliated schools contributed 277 examinees, and of these 23 or 8.3% failed.

It is evident that the students of institutions depending upon affiliated schools were the most successful during the first session, while the students instructed by the Doctor were the most successful during the second session. There is a small difference between Doctor-Teacher alone and the Nurse-Teacher alone in both sessions. The average
percentage of both sessions in each instance are: for Doctor instructors 4%; Doctor and Nurse 5.5%; Nurse, 3.4%; and affiliated teacher 4.3%. As the Doctor and Nurse combination gives a higher per cent of failure than Doctor or Nurse alone, a comparison might be made of the Affiliated Teacher and Nurse Instructor. The percental difference of the two sessions average is shown to be .9%. Again the combination of the two types of preparation may be considered as promising better results at state examinations. This corroborates the Committee's belief that pedagogical training is essential to the success of the nurse instructor (17:25), and that science courses, to be effective, must allow for demonstration (16:66). This relationship is shown in Table XVIII, page 114, and Figure 18, page 115.
## TABLE XVIII

**FAILURES IN MATERIA MEDICA AND TEACHER'S QUALIFICATIONS IN 46 SCHOOLS OF NURSING**

### 1931-1932

<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Doctor</td>
<td>10</td>
<td>160</td>
<td>6</td>
</tr>
<tr>
<td>Doctor and Registered Nurse</td>
<td>10</td>
<td>126</td>
<td>4</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>17</td>
<td>330</td>
<td>7</td>
</tr>
<tr>
<td>M.S. in Junior College or Technical High School</td>
<td>9</td>
<td>316</td>
<td>1</td>
</tr>
</tbody>
</table>

### 1932-1933

<table>
<thead>
<tr>
<th>Status of Instructor</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Doctor</td>
<td>10</td>
<td>138</td>
<td>6</td>
</tr>
<tr>
<td>Doctor and Registered Nurse</td>
<td>10</td>
<td>127</td>
<td>10</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>17</td>
<td>345</td>
<td>16</td>
</tr>
<tr>
<td>M.S. in Junior College or Technical High School</td>
<td>9</td>
<td>277</td>
<td>23</td>
</tr>
</tbody>
</table>
FAILURES IN MATERIA MEDICA AND TEACHER'S QUALIFICATIONS IN 46 SCHOOLS OF NURSING

1931-1932

3.8% Medical Doctor

4.3% Doctor and Nurse

7.9% Registered Nurse

8.3% M.S. of Junior College or Technical High School

1932-1933

3.2% Medical Doctor

2.1% Doctor and Nurse

4.6% Registered Nurse

.3% M.S. of Junior College or Technical High School
Failures in Anatomy and Grade Placement of the Subject

It is a well-known psychological principle that recency of preparation and opportunities for frequent and extensive repetition aid memory. Therefore, the years in which the sciences were taught would seem to have a definite bearing on the ability of the student to assimilate and to retain the principles of the scientific courses (29:1077).

Anatomy is fundamental to all the clinical subjects and must be introduced in the first year. This principle is evidently realized by all the schools of Michigan. But is the student nurse sufficiently adapted to her new environment, is she properly motivated to establish that feeling of need, that compelling desire for the intelligence and the skill which will enable her to apply her scientific knowledge to the actual care of the sick (29:1076)? Nursing educators should realize that the young nurse is in a bewilderingly new environment and that she continually meets an entirely new and vastly different terminology. When taught in the preliminary period only, with no definite plan for repetition, how well have the lessons in anatomy been retained?

A study made of the failures in anatomy, with special reference to years taught, shows that 29 of the 44 schools which participated in the 1931-1932 examinations teach anatomy during the preliminary course, and allot no definite plan for repetition. From these schools, 627 examinees were contributed, and 19 or 3% failed. From the 5 schools teaching anatomy in the first and second years, 69 examinees were
contributed, of whom 3 or 4.3% failed. The 4 schools teaching anatomy in the first and third years contributed 85 examinees, with 2 or 2.4% failures. The 6 schools teaching anatomy in the first, second, and third years contributed 151 examinees of whom 4 or 2.6% failed. A consideration of the 1932-1933 session shows that the 30 schools which taught anatomy during the first year only contributed 613 examinees and 46 or 7.5% failed. The five schools which taught anatomy during the first and second years contributed 56 examinees and 8 or 14.3% failed. The five schools teaching anatomy during the first and third years contributed 80 examinees and of these 7 or 8.8% failed, while the six schools which allotted instruction to the first, second, and third years contributed 138 examinees and 12 or 8.7% failed. This relationship is shown in Table XIX, page 118, and Figure 19, page 119.

During the first session the percentage failures are slightly less from the groups which were instructed during the first and third years than from the group instructed during the first year only, or the group instructed during the second and third years; but during the second session, the failures are more than one per cent in favor of instruction during the first year only as compared with instruction during the first, second, and third years. In the former group there are schools of 10% and 25% failures. These seem to be counterbalanced by other schools of low per cent of failures and schools of no failures.

A study of this particular group reveals two schools credited with good teaching facilities, and well-prepared faculties. One of these schools contributed 70 examinees and 7 or 10% failed in anatomy. The
# TABLE XIX

## Failures in Anatomy and Grade Placement of the Subject in

### 46 Schools of Nursing

#### 1931-1932

<table>
<thead>
<tr>
<th>Grade Placement</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td><strong>First</strong></td>
<td>29</td>
<td>627</td>
<td>19</td>
</tr>
<tr>
<td><strong>First and Second</strong></td>
<td>5</td>
<td>69</td>
<td>3</td>
</tr>
<tr>
<td><strong>First and Third</strong></td>
<td>4</td>
<td>85</td>
<td>2</td>
</tr>
<tr>
<td><strong>First, Second, and Third</strong></td>
<td>6</td>
<td>151</td>
<td>4</td>
</tr>
</tbody>
</table>

#### 1932-1933

<table>
<thead>
<tr>
<th>Grade Placement</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td><strong>First</strong></td>
<td>30</td>
<td>613</td>
<td>46</td>
</tr>
<tr>
<td><strong>First and Second</strong></td>
<td>5</td>
<td>56</td>
<td>8</td>
</tr>
<tr>
<td><strong>First and Third</strong></td>
<td>5</td>
<td>80</td>
<td>7</td>
</tr>
<tr>
<td><strong>First, Second, and Third</strong></td>
<td>6</td>
<td>138</td>
<td>12</td>
</tr>
</tbody>
</table>
Figure 19

FAILURES IN ANATOMY AND GRADE PLACEMENT IN 46 SCHOOLS OF NURSING

1931-1932

First: 3%
First and Second: 7.5%
First and Third: 4.3%
First, Second, and Third: 2.4%

1932-1933

First: 14.9%
First and Second: 8.8%
First and Third: 8.7%
First, Second, and Third: 2.6%
other school contributed 40 examinees and 10 or 25% failed in anatomy. As the failures have been shown to be less in the "good-facilities" group with well-prepared faculties, their student material was given individual consideration. Of the 7 failing students of the 70-student group, 2 were high-school graduates, 3 had had three years of high school, and 2 had only two years of high school. The total number of student failures in the 70-school group was 12. With the 7 failures in anatomy there were 10 in materia medica and one in medical diseases. There were 4 high-school graduates, 3 of B average and 1 of D average. There were 4 with three years of high school, and 4 with two years of high school, and they were graded as 3 B's and 1 D.

From the 40-student group with 25% failures--10 in anatomy and 5 in materia medica--there were 9 high-school graduates. Two of these students were rated As A, 4 as C, and 3 as D. It must be borne in mind that these 10% and 25% failures have not the same significance in every instance. There are the 40-student groups with 25% failures and the 8-student groups with 25% failures.

It is not possible to determine why the two A students who were high-school graduates and who were trained in a school which provided a well-prepared faculty and good teaching facilities, should have failed. The preparation of the applicant is of prime importance, but the completion of high school is not a safe measuring rod. Neither may credentials be relied upon too largely, as secondary school educators have a wide variety of standards for grading pupils (25:61). The failure of the university graduate may be explained by the fact that she was a foreigner,
and although an American student, found the terminology very difficult. Investigation of the reason for the fact that schools which provide well-prepared faculties and good teaching equipment admit poorly prepared students revealed the fact that the faculties, against their better judgment, have admitted transfer students and retained failing students because of political influence. Education is not safe under political domination.

A like consideration given to the student records of the schools of the first, second, and third year instruction shows that of the 6 or 11.3% failures of one school, all were high-school graduates. There were 2 of B average and 4 of C. The students of the schools of 5 or 33% failures were all high-school graduates, one was a B student and 4 were C students. This comparison would seem to corroborate the opinion that accomplishments of students would be considerably increased if higher standards of entrance requirements were maintained.

Experience has shown that the application of general principles to specific subjects is most effective at the time of the theoretical instruction and when given by the same instructors (66:584). If the same instructor teaches both theory and practice, there is a greater possibility of lessening the chances of confusion and of clarifying the application of scientific principles by the use of the same terminology in the classroom and during clinical service. Question as to the possible plan of co-ordinate teaching by the instructor of this subject, confirmed the assumption that there is absolutely no instance in which the instructor of anatomy formulates any plan of follow-up teaching of classroom prin-
ciples during the nursing service, although the skillful handling of every patient in all the different services depends upon the nurse's understanding of anatomy. If the instructor is a nurse, it seems reasonable to believe that she will have a better understanding of the nursing problems and be more vitally interested in the education of the nurse for the comfort of the sick. The nurse instructor has an opportunity to review anatomy during every clinical service, and the student nurse will have a better understanding of the services she is to give, if she is taught to consider the delicate structure and their physiological relations while administering surgical, dietary, or therapeutic care. "The anatomy and physiology of each system should be assigned for review before taking up the diseases of each system" (16:123). If this principle were followed in each clinical subject, the student would have a better understanding of nursing care, and it seems reasonable to believe that there would be fewer state-board failures.

Failures in Materia Medica and Grade Placement of Subject

The subject of materia medica would seem to be possible of assimilation and of retention only after the student has some understanding of the organic structure and of the physiological relationship of organs and systems to drug and other therapy.

The student's medical service is considered by the state inspector as more valuable if had during her second year. Her course in medical diseases and medical service is usually given during her second year. Theoretical principles are more readily applied at the time of instruction
and by the same instructor. Interest stimulates the learning process. The nurse will be more inquisitive about each new drug, and about the reason for administering a certain drug to her patient; she will be more eager to anticipate the reaction and to guard against untoward results; and she will have a more enthusiastic intellectual understanding of drugs, if the classroom study and the ward application are made to coincide.

A consideration of our school failures and their relation to these educational principles also seemed worthy of study. During the 1931-1932 session 26 of the 44 schools taught materia medica in the first year with no formal plan of repetition. These schools contributed 524 examinees, 9 or 1.7% of whom failed. The 7 schools teaching this subject in the second year with no repetition contributed 172 examinees of whom 3 or 1.7% failed. The 7 schools teaching materia medica in the first year and repeating it in the second year contributed 96 examinees, and of these 5 or 5.2% failed. The 3 schools which taught this subject during the first and third years contributed 124 examinees and 1 or .8% failed. One school taught materia medica in the first, second, and third years, and this school contributed 16 examinees, none of whom failed.

Consideration of the second session shows that 27 of the 46 schools taught materia medica in the first year only. The schools contributed 535 examinees, and 38 or 7.1% failed. The 7 schools which taught materia medica during the second year only, contributed 125 examinees, of whom 5 or 4% failed. The 7 schools which taught this subject during the first and second years, contributed 94 examinees and 6 or 6.4% failed. From the 4 schools which allotted instruction in materia medica to the
first and third years, 113 examinees were contributed and 6 or 5.3% failed, while of the 20 examinees from the one school teaching this subject in the first, second, and third years, there were no failures.

The fact that there was only one school and so few students in the no-failure group makes unjustifiable any definite conclusion in favor of this combination, yet the psychological principle that new material given in small doses, frequently repeated, and continued over a long period makes assimilation more possible and retention more certain should be given consideration (28:1077).

That the second-lowest average percentage failures were found in relation to that group of students who has received their classroom instruction during their junior year, corroborates the assertion that success would more readily follow class instruction if theory were made to coincide with clinical experience as to time allotment, and if the science instructor were to do the follow-up teaching in the ward by means of case studies and morning conferences, for science unapplied fails to function (28:1080). "It is reasonable to believe that a comprehensive course in the junior or senior year would reduce the number of failures in this subject" (37:383).

The relationship discussed in this section is shown in Table XX, page 125, and Figure 20, page 126.
# TABLE XX

## FAILURES IN MATERIA MEDICA AND GRADE PLACEMENT OF THE SUBJECT IN

46 SCHOOLS OF NURSING

### 1931-1932

<table>
<thead>
<tr>
<th>Grade Placement</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>26</td>
<td>524</td>
<td></td>
<td>9</td>
<td>1.7</td>
</tr>
<tr>
<td>Second</td>
<td>7</td>
<td>172</td>
<td></td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>First and Second</td>
<td>7</td>
<td>96</td>
<td></td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>First and Third</td>
<td>3</td>
<td>124</td>
<td></td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>First, Second, and Third</td>
<td>1</td>
<td>16</td>
<td></td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### 1932-1933

<table>
<thead>
<tr>
<th>Grade Placement</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>27</td>
<td>535</td>
<td></td>
<td>38</td>
<td>7.1</td>
</tr>
<tr>
<td>Second</td>
<td>7</td>
<td>125</td>
<td></td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>First and Second</td>
<td>7</td>
<td>94</td>
<td></td>
<td>6</td>
<td>6.4</td>
</tr>
<tr>
<td>First and Third</td>
<td>4</td>
<td>113</td>
<td></td>
<td>6</td>
<td>5.3</td>
</tr>
<tr>
<td>First, Second, and Third</td>
<td>1</td>
<td>20</td>
<td></td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Figure 20

FAILURES IN MATERIA MEDICA AND GRADE PLACEMENT IN
46 SCHOOLS OF NURSING

First: 1.7%
Second: 1.7%
First and Second: 6.4%
First and Third: 5.3%

1931-1932
1932-1933
Failures an Anatomy and Materia Medica as Affected by the
Number of Sciences Taught Simultaneously

Science courses necessitate intensive and extensive study. Contrary to most college rulings, more than two science courses are allowed in the same semester in our schools of nursing, yet the student nurses are faced with a heavier program of work than that of the general college student (23:1075). They must make many new physical, mental and emotional adjustments. May not an overcrowded curriculum explain many of the failures?

A study of the data obtained from the Michigan nursing school records has been made. A tabulation of the failures in anatomy according to the number of sciences taught simultaneously reveals surprising facts. The 46 schools, classified according to the number of sciences taught, show that 3 of the 44 schools participating in the examinations of 1931-1932 taught one other science with anatomy; 42 examinees were contributed, and 1 or 2.4% failed. From the 21 schools teaching two other science subjects with anatomy, 342 examinees were contributed, of whom 10 or 2.9% failed. The 12 schools teaching three other subjects with anatomy contributed 196 examinees, of whom 10 or 5.1% failed. The 6 schools teaching four other science subjects contributed 195 examinees and 3 or 1.5% failed. The remaining two schools, which taught five other subjects, contributed 157 examinees of whom 4 or 2.5% failed.

During the 1932-1933 session the three schools which taught one other science while teaching anatomy contributed 38 examinees, of whom
4 or 10.5% failed. Of the 26 schools which taught two other concurrent sciences 377 examinees were contributed, 25 or 7.4% failed. The twelve schools which taught other sciences contributed 203 examinees, of these 28 or 13.8% failed.

From the 6 schools teaching four other sciences, there were contributed 155 examinees, and 7 or 4.5% failed. The two schools teaching five other subjects contributed 154 examinees and 9 or 5.8% failed. Just what inference may be possible from this relationship is not clear. In each session the schools teaching four subjects simultaneously with anatomy are the most successful, while during the first session the schools teaching one other subject stand second, but have only a .1% lower failure than the schools teaching five other subjects. During the second session the schools teaching five other subjects have the second-lowest percentage of failures. Some very favorable causative factors must have overcome the crowded curriculum in favor of success in the five-science schools, or other hindering factors must be operative in the less-crowded curriculum. It is possible that intense concentration on science during one year or semester may result in greater interest and application on the part of the student. Overcrowding is undoubtedly injurious, but only further research can show precisely when a curriculum is in fact overcrowded.

The relationship just discussed is shown in Table XXI, page 129, and Figure 21, page 130.
## TABLE XXI

FAILURES IN ANATOMY AND NUMBER OF SCIENCES TAUGHT SIMULTANEOUSLY IN 46 SCHOOLS OF NURSING

### 1931-1932

<table>
<thead>
<tr>
<th>Number of Sciences Simultaneously</th>
<th>Number Of Schools</th>
<th>Number Of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>3</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>Two</td>
<td>21</td>
<td>342</td>
<td>10</td>
</tr>
<tr>
<td>Three</td>
<td>12</td>
<td>196</td>
<td>10</td>
</tr>
<tr>
<td>Four</td>
<td>6</td>
<td>195</td>
<td>3</td>
</tr>
<tr>
<td>Five</td>
<td>2</td>
<td>157</td>
<td>4</td>
</tr>
</tbody>
</table>

### 1932-1933

<table>
<thead>
<tr>
<th>One</th>
<th>3</th>
<th>38</th>
<th>4</th>
<th>10.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two</td>
<td>19</td>
<td>337</td>
<td>25</td>
<td>7.4</td>
</tr>
<tr>
<td>Three</td>
<td>12</td>
<td>203</td>
<td>28</td>
<td>13.8</td>
</tr>
<tr>
<td>Four</td>
<td>6</td>
<td>155</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Five</td>
<td>2</td>
<td>154</td>
<td>9</td>
<td>5.8</td>
</tr>
</tbody>
</table>
Figure 21

FAILURES IN ANATOMY AND NUMBER OF SCIENCES TAUGHT SIMULTANEOUSLY
IN 46 SCHOOLS OF NURSING

1931-1932
1932-1933

<table>
<thead>
<tr>
<th>Number of Sciences Taught Simultaneously</th>
<th>1931-1932</th>
<th>1932-1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>10.5%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Two</td>
<td>7.4%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Three</td>
<td>5.1%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Four</td>
<td>4.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Five</td>
<td>5.8%</td>
<td></td>
</tr>
</tbody>
</table>
We may now make a similar study of the failures in materia medica according to sciences taught simultaneously. It was found that 5 of the 44 schools examined during the first session taught no other science concurrently with materia medica. These schools contributed 117 examinees of whom 5 or 4.3% failed. Ten schools taught one science with materia medica and contributed 197 examinees and of these 7 or 3.6% failed. Fifteen schools taught two other sciences, contributed 208 examinees and 2 or 1% of these failed. Five schools taught four other sciences, contributed 142 examinees, and 6 or 4.2% failed. Three schools taught five other concurrent sciences and contributed 164 examinees, of whom 3 or 1.8% failed.

During the second session the five schools which taught no other concurrent science contributed 95 examinees of whom 4 or 4.2% failed. The ten schools which taught one other science contributed 176 examinees, and 5 or 2.8% failed. The two schools which taught two other sciences contributed 240 examinees, and 14 or 5.8% failed. Seven schools taught three other sciences, and contributed 101 examinees and 12 or 11.9% failed. Five schools taught four other sciences, and contributed 113 examinees, of whom 4 or 3.5% failed. The three remaining schools taught five other sciences, and contributed 162 examinees, of whom 16 or 9.9% failed. The conclusion possible from this relationship is not at all clear. The relationships are shown in Table XXII, page 132, and Figure 22, page 133.
TABLE XXII

FAILURES IN MATERIA MEDICA AND NUMBER OF SCIENCES TAUGHT SIMULTANEOUSLY
IN 46 SCHOOLS OF NURSING

1931-1932

<table>
<thead>
<tr>
<th>Number of Sciences Simultaneously</th>
<th>Number of Schools</th>
<th>Number of Examinees</th>
<th>Student Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>117</td>
<td>5</td>
</tr>
<tr>
<td>One</td>
<td>10</td>
<td>197</td>
<td>7</td>
</tr>
<tr>
<td>Two</td>
<td>15</td>
<td>208</td>
<td>2</td>
</tr>
<tr>
<td>Three</td>
<td>6</td>
<td>104</td>
<td>3</td>
</tr>
<tr>
<td>Four</td>
<td>5</td>
<td>142</td>
<td>6</td>
</tr>
<tr>
<td>Five</td>
<td>3</td>
<td>164</td>
<td>3</td>
</tr>
</tbody>
</table>

1932-1933

|                                   |                   |                     |       |         |
|                                   |                   |                     | Number | Per Cent |
| None                              | 5                 | 95                  | 4      | 4.2      |
| One                               | 10                | 176                 | 5      | 2.8      |
| Two                               | 16                | 240                 | 14     | 5.8      |
| Three                             | 7                 | 101                 | 12     | 11.9     |
| Four                              | 5                 | 113                 | 4      | 3.5      |
| Five                              | 3                 | 162                 | 16     | 9.9      |
FAILURES IN MATERIA MEDICA AND NUMBER OF SCIENCES TAUGHT SIMULTANEOUSLY IN 46 SCHOOLS OF NURSING

1931-1932

None: 4.1%
One: 3.6%
Two: 2.8%
Three: 5.8%
Four: 4.2%
Five: 1%

1932-1933

None: 4.2%
One: 3.5%
Two: 2.9%
Three: 4.2%
Four: 1.8%
Five: 9%
It must be admitted, however, that the greater frequency of failures alone cannot be regarded as affording convincing evidence as to the educational value of any specific situation. Each situation is promoted or impaired by related factors.

It is the functioning of the organization as a unified whole, which is the true criterion of the efficiency of nursing education, and it is the unified operation of the organization that prepares the student to serve the community and to pass the state examinations.
Cause of Variation between 1931-32 and 1932-33 Results

When all the facts ascertained from this survey was considered in the light of their relations to one another, one rather surprising and not easily explained fact stood out from the others. It was this: in every instance the failures increased during the second session. This increase, however, could not have been caused by the factors which influence the effective operation of the curriculum, for they are known to have been identical during the two years. The writer sees three variants which seem quite possible:

1. the student material
2. the examination questions
3. the examining board personnel

In 1928 and 1929, the years in which these examinees were admitted as student nurses, members of the American Hospital Association and the American Medical Association, and many nursing educators, had already seen the nursing field crowded with inadequately prepared graduates. The grading committees were already stimulating a better selection of students and insisting that each school raise its entrance requirements and its standards of education (11:56). It does not seem reasonable, then, to believe that less intelligent students were accepted in 1929 than had been accepted in 1928. Applicants were many, and consequently schools could easily choose the better-prepared student. Moreover, this supposition as to the inferior quality of the applicant in the 1929 session
was not sustained by the state educators nor the high-school credentials of the students who failed.

The examination questions were next given consideration. The questions to which the examinees had been subject during the two years, with the date of each examination, were obtained. A copy of each set of questions was checked by the examiners of each of the subjects showing failures, to indicate which questions had seemed most difficult and had contributed most frequently to the student's failures. As a means of determining which particular group of questions had been responsible for the greater number of failures, the examinees were grouped according to the date examined.

Of the 887 examined during the session 1932-1933, 380 participated in the October examinations. There were 12 or 3.2% failures in anatomy and 6 or 1.6% failures in materia medica. The March examinees numbered 131, of whom 2 or 1.5% failed in anatomy and 1 or .8% failed in materia medica. There were 159 examinees in May, and 32 or 20.1% failed anatomy and 18 or 11.5% failed materia medica. In June, of the 217 examinees 27 or 12.4% failed anatomy and 30 or 32.8% failed materia medica. Of the 73 total anatomy failures 59 or 80.8% were caused by the May and June examinations, while the October and March examinations caused only 14 or 19.2% of the total failures. The materia medica failures were also greater during the May and June examinations; they were 48 or 87.3% of the total failures, while the October and March examinations caused only 7 or 14.7%.

The checking of the examination questions did not clarify the
situation, as was hoped. There were more surgical and dietetic questions checked as having most frequently caused failures than there were questions on anatomy and materia medica. Yet failures in the latter subjects were more frequent during both sessions. Many of the surgical and dietetic questions checked denoted a lack of understanding of the anatomy and physiology of the structures, organs, or systems to be considered. Here again may be emphasized the recommended review of the anatomy of each system before teaching the clinical material in relation to each subject (16:123). Many of the questions most frequently failed evinced similar difficulties. The “define” and “what is” type of question was more frequently checked than was the “name” or “locate” type of question, but distribution of the two type of questions seemed about even in the examinations.

All of the anatomy and materia medica questions were of the essay type and question-and-answer type, yet the general opinion of those who checked the questions was, “Nurses have difficulty in explaining themselves in the essay-type questions.” The essay-type question has been considered as frequently causing failures, but we cannot ignore the very significant fact that the pediatrics, obstetrics, bacteriology, and medical-disease questions were all of the essay type and question-and-answer type, and there were no failures in these subjects (38:172).

The objective-type question was used more frequently for the surgical and dietetic examinations than were the subjective-type. The examiner who checked the surgical and dietetic questions stated that she preferred the objective-type question, but did not give the reason for
her preference.

The examination questions were next distributed to, two graduates who are instructors, two graduate nurses who are not teaching, and to two senior students who had completed their courses in the subjects under consideration. These critics found nothing of significance in the examination questions of 1932-1933 that could, in any perceptible degree, account for the greater number of failures than was caused by the questions of 1931-1932.

Next the writer attempted to determine whether or not there had been any change in the examining board personnel during the interval between these two sessions. The examining boards of 1931-1932 and 1932-1933 were said, by a member of the examining board, to be identical.

As has been stated before, a changed attitude on the part of the examiners seemed the only reasonable cause for the increase of failures. We all know that continued success promotes complacency in individuals, institutions, and organizations, and is not conducive to more vigorous striving. Records show that the Michigan schools are far from ideal in student selection, faculty preparation, teaching facilities; curricular content, and hours and time allotment. Progressive educators, seeing students of the various schools registered each year with a mere passing mark would be justified in stimulating those schools to greater effort as to curricular content and operative factors.

This assumption concerning the changed attitude of the examiners was confirmed. It was admitted that students had been given passing marks, rather than be allowed to fail after three years in school, and
that it had been suggested to the board members that papers should be
marked strictly according to content, and students who actually failed
in the writing of the examinations should not be given passing marks.

Although the leniency of the examining board in 1931-1932 would,
if known in advance, have caused the present writer to refrain from tabu-
lating and studying the failures, the greater strictness in 1932-1933
serves to increase the significance of the data for that year. And one
helpful outcome of this research should be to focus attention on the im-
portance of great caution in any attempt to study the causes of failure.

SUMMARY

The primary purpose of this study was to ascertain the efficiency
of the curricula of Michigan's Accredited Schools of Nursing in preparing
the students of these schools for state registration.

The data which were obtained from the permanent records of the
Michigan State Board of Registration for Nurses and Trained Attendants,
from questionnaires answered by members of the state examining board,
and by personal interview with state examiners were classified and tabu-
lated in relation to the various curricula and to those factors which in-
fluenced their operation and to the Standard Curriculum.

These data were carefully studied to determine the number of
successful and non-successful examinees during the sessions 1931-1932
and 1932-1933 and their relation to the hours allotted to classroom in-
struction in the subjects which had caused failures during these sessions
and to the factors influencing the effective operation of each curricula.
The effectiveness of a program of study is to be judged by the degree to which it promotes the success of its followers. The curriculum cannot operate of itself. With these principles in mind the writer took into consideration the successes and failures of the followers of the Standard Curriculum and of those who exceeded the Standard Curriculum (called in this study the Major Curriculum).

The influencing factors which had been recommended by members of the Grading Committee as desirable in promoting the efficiency with which the curriculum may operate were also considered.

Analysis of the successes and failures in the subjects causing failures during the sessions under consideration shows that examinees prepared by the Major Curriculum were the more successful in the state examinations than were the students of the Standard Curriculum, with the exception of the materia medica group examined during the 1932-1933 session, when the students who were instructed in materia medica under the Major Curriculum sustained a greater number of failures—and, what is even more significant, a higher percentage of failures than did the students of the Standard Curriculum.

A closer study of the schools represented by this group of examinees shows the inclusion of schools classified as having meagre teaching facilities and mediocre student material. This corroborates the belief that it is the organization as a unified whole which determines its efficiency, and the statement of the Committee that no curriculum can operate of itself (16:17). These principles are also sustained by the greater success of the students who were prepared by instructors of special
educational preparation, by the more adequate teaching facilities and by correlation of class instruction and ward practices by a specially prepared clinical instructor.

Data presented in this study do not sustain the belief that the greater number of sciences taught simultaneously lessens the possibility of success (29:1075). Neither do the findings of this study show that grade placement has any appreciable significance in the state-board success of the students of anatomy. This the writer believes is due to the absence of any definite plan of correlating the classroom instruction in anatomy with the clinical services.

The constant success of the examinees in those clinical subjects—pediatrics—obstetrics—medical diseases etc., which are most frequently taught by the clinical supervisor, causes the writer to believe that if there were a definite plan of follow-up teaching for each subject, the state-board failures would be considerably reduced. There is absolutely no definite plan of follow-up teaching which would effect anatomy and materia medica in any of Michigan's accredited schools. Any correlation of class instruction with clinical service is incidental. This the writer believes is one of the greatest weaknesses of our nursing educational system. We find that students sustain fewer failures in materia medica than in anatomy, as related to grade placement. Drugs and theoretical principles are of necessity used during the clinical services of the medical diseases and surgical wards. It seems reasonable, therefore, to believe that if the classroom instructor were the ward-teaching supervisor, co-ordinate teaching would by the very nature of the situation be
possible, the learning process would be stimulated and each repetition
would lessen the possibility of the student failing in anatomy when tak-
ing the state-board examinations.

Analysis of the relation which exists between the state-board failures and the extent to which these recommendations are followed leads the writer to believe that in as much as the more favorable educational circumstances which are advocated as effective in promoting curricular success are directly related to the more successful group of examinees, she is justified in stating that the degree of success or failures in state-board examinations is in a considerable degree directly related to close adherence to, or deviation from the Standard Curriculum.
BIBLIOGRAPHY


11. Burgess, Ph.D., May Ayres, "Why Not Improve Training for Fewer Nurses?" Modern Hospital, 32:56-61, January, 1929.


42. "Minutes of Meetings of Council on Nursing Education." *Hospital Progress*, 14:329-30, August, 1933.


The thesis "Causes of Student Failure in Accredited Schools of Nursing in Michigan," written by Sister Mary Leonard Sage, has been accepted by the Graduate School of Loyola University, with reference to form, and by the readers whose names appear below, with reference to content. It is, therefore, accepted as a partial fulfilment of the requirements for the degree of Master of Arts.

Rev. Austin G. Schmidt, S.J.  July 13, 1934
Dr. William H. Johnson  July 17, 1934