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# A medical shorthand vocabulary

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SERVICE PAPER

A MEDICAL VOCABULARY FOR THE STENOGRAPHERS  
OF THE WRENTHAM STATE SCHOOL

Submitted by

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A. B., Emmanuel College, 1942

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School of Education  
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SERVICE PAPER APPROVED

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## CHAPTER I

### PURPOSE AND NATURE OF THE PROBLEM

The purpose of this study is to determine by frequency count a medical vocabulary for the stenographers of an institution for the feeble-minded. The objectives are as follows:

1. Medical terms will be arranged according to the frequency with which they appear in three different sets of medical dictation—abstracts of case histories, autopsy reports, and x-ray reports.
2. Shorthand outlines for these terms will be presented.

As in all word counts, it is assumed that, in determining a vocabulary, objective measurements should be employed rather than subjective estimates. This is in accord with a statement by Rinsland.<sup>1</sup>

Even estimates of scientific writers for high-school textbooks are overestimates both in technical terms and non-technical terms, as shown by a most extensive analysis by Curtis.

In this particular count, the assumptions are that the medical terminology advocated for a stenographer in the institution will be found in the dictation given therein, and that application of the results of the count will improve ability to take such dictation.

Of the importance of word counts, Leslie has this to say:<sup>2</sup>

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<sup>1</sup> Henry D. Rinsland. A BASIC VOCABULARY OF ELEMENTARY SCHOOL CHILDREN, the Macmillan Company, New York, 1945, p. 3.

<sup>2</sup> Louis A. Leslie. "Thorndike's 30,000 and the Shorthand Teacher," BUSINESS EDUCATION WORLD, June, 1946, p. 526.

Word-frequency counts do not tell the whole story of the relative values of words to the shorthand writer because there are other factors which are strictly shorthand that must be taken into consideration. Word-frequency counts, however, are still the best criterion by which we can judge word values for shorthand instruction; and, therefore, it behooves the shorthand teacher to be familiar with each new word count as it appears.

Also, in advising Ribaudo, who intended drawing up a vocabulary for<sup>1</sup> the stenographers of an aviation concern, he wrote the following:

"A secretary, stenographer, or correspondent might easily have great use for a frequency count of actually dictated correspondence of the industry."

#### DEFINITION OF TERMS

It is well here to give definition of terms used in the preceding paragraphs and throughout this paper, as well as some information concerning the institution on the premises of which this count took place.

The Wrentham State School is a state institution or school for the protection and the training of the feeble-minded. It is the second institution of its kind established in Massachusetts- the first being the Walter E. Fernald State School founded in Waverly in 1852. By an act of Legislature in 1905, this second school was established. It was originally intended that the school should house only eighteen hundred patients; at the present time, there are approximately two thousand seventy-four patients. This is the only institution in this state admitting feeble-minded children under six years of age.

The school has resources for research into the causes and methods of

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<sup>1</sup>  
Vincent Ribaudo. A SPECIALIZED VOCABULARY FOR A SELECTED AVIATION CONCERN, Unpublished Master's Thesis, Boston University, Boston, 1947, p. 7A.

prevention of mental defects. Seven doctors are on the medical staff of the school. Through its program of training, encouragement, and supervision, the Wrentham State School enables some of its charges to lead reasonably adjusted lives in the community.

The following definitions from the DICTIONARY OF EDUCATION throw additional light upon the nature and function of such an institution.<sup>1</sup>

A State Institution: is defined as "any public institution, controlled by the state and serving an area of the state or the entire state; e. g., a special school for the feeble-minded."

State School: an institution supported and controlled by the state and performing an educational function within the state, especially one serving peculiar functions not duplicated locally.

This thesis may refer to the Wrentham State School as state school, state institution, or simply as school or institution.

For an accurate interpreting of other terms used herein, the following definitions are offered.<sup>2</sup>

Feeble-mindedness:

1. In the United States a generic term to designate the condition from early life of a person so defective in intelligence or general ability that he requires care and supervision for his own protection and for the protection of others. It includes the

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<sup>1</sup> Carter Good. DICTIONARY OF EDUCATION, McGraw Hill Book Company, Inc., New York, 1945.

<sup>2</sup> The remaining definitions are from the above-named source and from the DICTIONARY OF OCCUPATIONAL TITLES, Washington, D. C., United States Government Printing Office, 1939.

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three grades of idiocy, imbecility, and moronity.

2. Sometimes used arbitrarily to designate the condition of a person with an I. Q. (Binet) below a certain point.

Frequency Word List: A list of words scientifically selected and arranged to indicate relative frequency of occurrence.

Medical Term: Any word or phrase found in Dorland's AMERICAN MEDICAL DICTIONARY will be recognized as a medical term in this study.

Running Words: The actual running dictation as opposed to contextual material found in the dictated matter of this institution.

Secretary: One who performs general office work in relieving executives and other company officials of minor executive and clerical details, and takes dictation using shorthand.

The term "secretary" as used in this study will refer to medical secretary as distinct from medical stenographer.

Specialized Secretarial Training: Education, instruction, and practice in the duties performed by stenographers, that seeks to prepare individuals for a specific type of occupation and maintain a high degree of proficiency.

Stenographer: One who takes dictation in shorthand of correspondence, reports, and other matter, and transcribes dictated material, writing it out in longhand or using a typewriter. May be required to be versed in the technical language and terms used in a particular profession.

The definition given above refers to medical stenographer in this thesis. A definition of the stenographer of this institution has been adapted from a Civil Service notice of examination for junior clerks and

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stenographers. This particular notice is chosen because it is the employees with this title who are required to take the dictation involved in this word count.

Junior Clerk and Stenographer: One who under immediate supervision takes notes from dictation and transcribes them on the typewriter; who does miscellaneous typing and routine clerical work of ordinary difficulty; and who performs related work as well.

The following definitions of the three types of medical dictation given in this institution are offered. These definitions are original.

Abstract: A digest of the salient features of a case history. (See Appendix B, 1.)

Autopsy Report: A clear, complete, accurate description of the finding resulting from a post mortem examination. (See Appendix B, 2.)

X-ray Reports: A record of the findings shown by x-ray film. (See Appendix B, 3.)

#### DELIMITATION OF THE PROBLEM

This word count is limited to three types of dictated matter; namely, abstracts of case histories, autopsy reports, and x-ray reports since this material is the most heavily laden with medical terminology.

Only medical terms found in Dorland's American Medical Dictionary will be included in the frequency count. Derivative forms not listed in this source will not be recorded. There are two exceptions to this ruling.

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5m-(b)-3-48-23132. Massachusetts Civil Service Examinations. Stenographic Service for State, and Cities and Towns Outside of Boston and Vicinity.

however. Plurals of nouns are recorded, as well as the third person singular, present tense of verbs.

Ten thousand running words in each of the three designated classifications of dictation will be investigated.

#### JUSTIFICATION

Since it is medical dictation upon which attention is here centered, it is the aspect of the school as hospital that requires investigation.

One of the minimum standards for hospitals is that accurate and complete medical records be kept for all patients. This information would constitute the case record or history. According to Markwick, the case history comprises the following data:<sup>1</sup>

1. Identification
2. Complaint
3. Personal and family history
4. History of present illness
5. Physical examination
6. Special examinations, such as consultations, clinical laboratory, x-ray, and other examinations
7. Provisional or working diagnosis
8. Medical or surgical treatment
9. Gross and microscopical pathologic findings
10. Progress notes
11. Final diagnosis

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Markwick, Erickson, and Freeman. OFFICE MANUAL FOR THE MEDICAL SECRETARY, Gregg Publishing Company, Boston, 1947, p. 76.



12. Condition of discharge and follow-up; and, in case of death, autopsy findings.

Like information, as well as School-Clinic records--where such exist--becomes part of the permanent records of patients at the state school. The abstract presents such information in digest form. The abstract is usually dictated or written out for the stenographer a short time after the patient's admission. Since the abstract is such a digest, it seemed better adapted to the purposes of a word count than any other section of the case history. It was considered to have a stronger concentration of medical terminology than other parts of the case record.

Autopsy and x-ray reports were considered for this count because of their strong concentration of medical terms and because they are always given in dictation. This is not always true of the abstract.

The importance of the autopsy report is expressed by Markwick.<sup>1</sup>

The purpose is to make a permanent record to which physicians, pathologists, medical students, and even attorneys may refer. It is the actual basis for further research, and as such must be accurate to the minutest detail. It includes all the observations made at the immediate examination, and all subsequent bacteriological, histological, and chemical studies.

Since this institution is a school rather than a hospital, medical dictation will not appear in the proportion with which it does in an actual hospital. Because of the background of the average stenographer in this school, the situation described by Leslie is a frequent occurrence.<sup>2</sup> "If a word is not in the pupil's vocabulary at all, it may fly over his

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Markwick, et al. op. cit., p. 76.

2

Louis A. Leslie. "Transcription's Unsolved Problems," GREGG NEWS LETTER, Number 235, February, 1947, p. 327.

head as he takes dictation. In that case it will not appear in the transcript."

Some idea of the preparation of the stenographer at this school may be derived from examination of requisites stipulated by the Civil Service.<sup>1</sup> The stenographer must have reached the age of 16 and be graduated from high school. Tests consist of two clerical tests including spelling, arithmetic, following directions, filing, and word knowledge--and a test in stenography. Dictation is given at 80, 100, and 120 words a minute with 300 words in each letter. The applicant may choose any of the three letters. Applicants must receive 70 per cent in accuracy of transcription of at least one dictation and in each subject.

When one realizes that "the usual criticism of the beginning medical stenographer is that the paucity of his medical knowledge causes him to transcribe inaccurately, even meaninglessly," one can see the predicament of the stenographer wholly unprepared in medical terminology who is suddenly called upon to take dictation such as in the three samples given in Appendix B.<sup>2</sup> The problem is further aggravated by the fact that two of the doctors on the staff are recent European emigres. These men rely to a great extent upon Latin, particularly in autopsy dictation.

With regard the medical stenographer's problems, Smither has this to say:<sup>3</sup>

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<sup>1</sup> Massachusetts Civil Service Examinations, op. cit.

<sup>2</sup> Effie Smither. THE MEDICAL STENOGRAPHER, Gregg Publishing Company, Boston, 1939, p. iii.

<sup>3</sup> Effie Smither, GREGG MEDICAL SHORTHAND MANUAL, Gregg Publishing Company, Boston, 1927, p. iii.

Nowhere is absolute accuracy more a necessity, and nowhere else will the verbatim recording be more difficult. Medical terminology is highly technical, and specialized to an unusual degree. The words are very unusual to one other than a doctor; and they are often long and so compounded of a root, a prefix, and a suffix as to express whole ideas. The difficulty is further increased for the reporter by the fact that the speaker's audience is usually composed of fellow-doctors who can convey to each other a very great deal in a few words. The doctor is generally well educated, a quick thinker, and a ready talker; but he does not always speak distinctly.

<sup>1</sup>  
Leslie tells us: "Through centuries of growth law and medicine have amassed great technical vocabularies, some unintelligible to the layman."

How important the ability to transcribe medical dictation intelligently<sup>2</sup> looks to physician and secretary is here in evidence. In a survey made by Markwick, it was found:

Shorthand and typewriting are tools indispensable to most secretaries. Of 539 physicians who checked a list of duties that they would require of their medical secretaries, 525 specified the taking of dictation and transcribing from shorthand notes. They marked no other duty on the list so highly.

Of 124 medical secretaries checking the same list, 119 reported taking dictation.

How medical stenographers graded their dictation for importance was<sup>3</sup> indicated by the same author.

1. Letters ranked first

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<sup>1</sup> Louis A. Leslie. "Transcription's Unsolved Problems," GREGG NEWS LETTER, Number 234, January, 1947, p. 232.

<sup>2</sup> Markwick et al. op. cit., p. 61.

<sup>3</sup> Ibid, p. 62.

2. Patients' histories ranked second
3. Reports to insurance companies
4. Reports to social agencies
5. Articles, speeches, reports on research
6. Minutes and autopsy protocols

This ranking would not be the same in the school. A great deal of time is spent upon patients' running notes--reports from the building matrons on the health of patients, their activities, habits and behavior, visitors, and improvement. Letters would rank high, but they are not considered in this study since there is so little medical terminology contained in them. The majority of letters are concerned with the admission of patients, with their visits and vacations with family or relations, and with illnesses. Reports to insurance agencies would rank low. Reports to social agencies would be handled by the social workers, for the most part. Articles, speeches, and reports on research would also have a low ranking.

Markwick makes a pertinent observation--that the stenographer must be a specialist; she must know meaning, long-hand spelling, and shorthand symbol.<sup>1</sup> She must not guess. This judgment is applicable in this situation.

Students of the medical secretarial course at Rochester often work in hospitals the summer of their first year.<sup>2</sup> Results of this practice

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<sup>1</sup> Markwick et al. op. cit., p. 62.

<sup>2</sup> Naomi Peterson. "The Medical Secretarial Course at Rochester, Minnesota," BUSINESS EDUCATION WORLD, October to November, 1941, Volume 22, p. 243.

have indicated a need for a wide basic vocabulary, and the importance of knowing abbreviations and symbols of laboratory reports, x-ray reports, electrocardiograms, and related matter. Students have found that most of the work in these hospitals consists of dictation of letters and medical manuscripts. It was discovered that, despite the emphasis thrown upon vocabulary development, the school had succeeded in treating only three-quarters of the words needed at work. Prospective secretaries were taught to form new words from basic knowledge of shorthand and knowledge of roots, prefixes, and suffixes of Latin and Greek medical words.

Several texts have been prepared for the use of the medical stenographer; only one of these is based on frequency count—the LaViola study.<sup>1</sup> She presents the five thousand most-used medical terms found in medical correspondence and testimony and classifies them according to frequency with corresponding shorthand outlines. A complete description of her compilation appears in Chapter two of this thesis.

Another excellent work is the GREGG MEDICAL SHORTHAND MANUAL, which, however, "does not even aim to give the 'most commonly used' words."<sup>2</sup>  
<sup>3</sup>  
 The book is intended to serve two purposes:

1. As a reference book to settle questions that arise as to the best form for a word.
2. As a textbook. This is the most helpful way.

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<sup>1</sup>  
 Clara LaViola. MOST-USED MEDICAL TERMS, Gregg Publishing Company, Boston, 1943.

<sup>2</sup>  
 Effie Smither. GREGG MEDICAL SHORTHAND MANUAL, Gregg Publishing Company, Boston, 1927.

<sup>3</sup>  
 Ibid, p. iv.

Its usefulness lies in the following information which it supplies:

1. A List of Common Prefixes and Suffixes.
2. Use of Tables in the Medical Dictionary, with Special Shorthand Forms for Frequently Recurring Expressions.
3. Homonyms and Similar Words.
4. Formation of Plurals.
5. Value and Significance of Prefixes and Suffixes, with Shorthand Forms.
6. Common Phrases and Word Combinations.
7. General Vocabulary.

Meanings are presented for principal prefixes and suffixes of Latin<sup>1</sup> and Greek origin. The author says: "The secretary who makes himself familiar with their spelling and meaning will not be able to calculate their help in comprehending new words." Definitions are not presented with the general vocabulary. The author presents her criterion for the inclusion<sup>2</sup> of a medical term:

The ease with which many words may be written does not seem to justify their inclusion here. The words have been chosen rather from the point of view of the shorthand; but the lists have been carefully checked off and each word given is used frequently.

Despite the unquestionable value of this book, it is considerably more economical to base a study of medical terminology used in an institution on actual count of words dictated therein. LaViola's compilation, though useful to a medical stenographer, is limited in benefit to the

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<sup>1</sup>  
Effie Smither, op. cit., p. 6.

<sup>2</sup>  
Ibid, p. iv.



stenographer of this institution because based on medical correspondence and testimony. In fact, the Gregg publishers in a preface to the study<sup>1</sup> say this:

Two other types of material frequently dictated by doctors are case histories and autopsies. Each has a special vocabulary; and it is hoped that some other investigator will make word-frequency counts in these two fields.

The GREGG MEDICAL SHORTHAND MANUAL was not based on frequency and so cannot be compared for efficacy with an actual word-count. It is valuable to one studying to become a stenographer in the field of general medicine or to one interested in court reporting. It is an invaluable reference to one wishing to study meanings of prefixes, suffixes, or in finding the correct shorthand form for a term, or in any other type of reference the book supplies.

LaViola offers no meanings, and an additional criticism is that there is given no alphabetical listing of the terms found in her study. This detracts somewhat from its usefulness as a reference book for shorthand outlines.

One other study purports to be a medical dictionary for the stenographer.<sup>2</sup> This is the ROBERTS MEDICAL HANDBOOK. The Preface speaks of the need for a medical stenography book that would be more than a mere dictionary; what is desired is a dictionary helpful to the court reporter, the medical student, the nurse, and the layman. An understanding of what

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<sup>1</sup>  
LaViola, op. cit., p. iii.

<sup>2</sup>  
M. Roberts. ROBERTS MEDICAL HANDBOOK, Gregg Publishing Company, Boston, 1941.

is meant by this statement may be derived from an examination of the "Contents."

- I Bones of the Body
- II Joints of the Body
- III Muscles of the Body
- IV Sprains and Fractures
- V Common Diseases of the Joints and Muscles
- VI The Nervous System
- VII The Blood Vascular System
- VIII The Glandular System
- IX The Lymph Vascular System
- X The Digestive System
- XI The Respiratory System
- XII The Genito-Urinary System
- XIII The Skin and Mammary Glands
- XIV The Reproductive System
- XV Prefixes
- XVI Suffixes
- XVII Phrasing
- XVIII Diseases
- XIX Surgical Operations
- XX Case Histories
- XXI Medicolegal

Though this is a useful text for a medical stenographer or secretary, it is not so effective a method of attack for the medical vocabulary problem in this situation.



Examples of how the objectives of the Roberts' Handbook are achieved are as follows:

In the chapter "Muscles of the Body" are given the names with shorthand outlines and explanations of the muscles of the upper and lower extremities.

Taking "Chronic Arthritis" as an example of the manner in which diseases are handled, we find a paragraph for Cause, Pathology, and Symptoms, with difficult shorthand outlines given in the margin.

Marie Yates has a GREGG MEDICAL DICTATION SERIES on the market—<sup>1</sup> several of which are experimental. Each volume is divided into two sections; one for case reports, and one for vocabulary. All reports were chosen

1. to present those that would be of greatest value in developing a working medical vocabulary, and
2. to orient the student promptly in the professional office atmosphere.

The author says:

The inclusion of any given record and its particular position in the text has been based upon its usefulness in creating or adding to the student's armamentarium of medical terms, and not upon the frequency or infrequency with which the case described may be encountered in the routine of office or hospital association.

THE GENERAL MEDICINE EDITION is seen to be quite inapplicable to the situation, especially after completion of this study. If one compares the contents of this Edition with the vocabulary listed in Chapter four

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<sup>1</sup> Marie Zweigman Yates. GREGG MEDICAL DICTATION SERIES, Gregg Publishing Company, Boston, 1939.

of this study, one readily sees the discrepancy between the two. The contents of Yates' book, for example, include the following:

Rat-Bite Fever

Diabetic Coma

Pernicious Anemia

Foreign Body Abscess of the Pancreas

Hemolytic Streptococcus Meningitis

Diabetes Insipidus

Diabetes Mellitus

Gout

Ankylosis

Other branches of medicine covered in the medical dictation series are as follows:

Surgery

Pediatrics

Ear, Nose and Throat

Obstetrics and Gynecology

Cardiology

Diseases of the Chest

Urology

Orthopedics

The sequence development in each text is especially designed to create an ample vocabulary by repetition and addition as speedily as possible. In order to obtain a complete glossary in each unit, repetition of some terms from volume to volume was necessary. Names of bones, muscles, blood vessels were purposely omitted from the lists of words

given in the second section of each unit, as it was decided that these could be obtained from any book of anatomy and physiology or from any general medical dictionary. The present study includes such terms; names of bones are particularly prevalent in x-ray dictation.

In 1939, Smither published THE MEDICAL STENOGRAPHER as a companion book to the MANUAL.<sup>1</sup> Its purpose is to supply dictation material, and at the same time give the prospective secretary a fund of basic medical knowledge. It does not aim to treat the subject exhaustively since the medical secretary does not have the time for such study nor have need for such detailed knowledge in his work. Chapters are devoted to such as the following:

Cell and Cellular Basis of Man

Tissues

The Skeleton--the Osseous System

Syndesmology--Joints or Articulations

Myology--the Muscular System

Neurology--the Nervous System

The Blood

Angiology--the Circulatory System, Blood Vascular

Angiology--the Circulatory System, Lymph Vascular

Splanchnology--the Glandular System

Splanchnology--the Respiratory System

Splanchnology--the Digestive System

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Effie Smither. THE MEDICAL STENOGRAPHER, Gregg Publishing Company, Boston, 1939.

Splanchnology—the Excretory System

The Skin—the Tegumentary System

Internal and External Sense Organs

Splanchnology—the Reproductive System

Bacteriology

Interspersed with these special chapters are three chapters offering a brief history of medicine. This text, together with the MANUAL, comprises a valuable course for the prospective medical stenographer; but none of the books mentioned can be as effective in combating the vocabulary problem as an actual word count.

It has been the experience that some of the stenographers employed at this institution go on to court reporting or to actual medical stenography. This is a desirable outcome. Markwick in her book mentions a survey showing almost ten thousand medical stenographers working full-time in the hospitals of the United States. This is the report of the Women's Bureau of the United States Department of Labor. Markwick points<sup>1</sup> out a trend:

To fulfill the ever-increasing responsibility placed on them by technological and social advancement, physicians are asking for assistants who are thoroughly trained in both office and laboratory skills.

Roberts describes a trend in another direction in the medical field.<sup>2</sup>

The rapid growth of medical science in the twentieth century has been accompanied by a similar growth in its

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<sup>1</sup> Markwick et al. Op. cit., p. 61.

<sup>2</sup> Roberts, op. cit., Preface.

ancillary services. More recently we have witnessed as a result of our social needs, the development of group medicine, hospitalization plans for voluntary medical expense insurance, etc.

This growth has produced an increased demand for stenographers with a good working knowledge of medical terminology in the hospitals, in the laboratory, in the physician's office, in the offices of the hospital plans' insurance companies, and many others.

The interest of doctors in securing intelligent assistants is shown by the fact that scholarships for medical secretarial courses were offered<sup>1</sup> by interested physicians in Wilmington, Delaware.

With these words, Smither comments the work of the medical secretary.<sup>2</sup>

Being secretary to a busy doctor brings with it satisfaction; to have even a small part in so fine a profession is inspiring. But aside from all this that belongs naturally to the profession, the mastery of the mere technical side of the medical secretary's job is a challenge to one's interest and inventiveness and judgment.

She warns, however:<sup>3</sup> "No matter how much the secretary may come to understand the content, he dare not trust his 'knowledge of content' in transcribing."

Markwick writes:<sup>4</sup>

In the acceptance and carrying out of her responsibilities the medical secretary can find many satisfactions. Chief among them will be the opportunity to be learning constantly; to feel herself a part--no matter how tiny a part-- of

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<sup>1</sup> Jay Miller. "The Medical Secretarial Course at Goldy College," JOURNAL OF BUSINESS EDUCATION, June, 1945, Volume 20, p. 22.

<sup>2</sup> Effie Smither, op. cit., p. iii.

<sup>3</sup> Ibid.

<sup>4</sup> Markwick et al., p. 3.

a scientific movement that is advancing and in its advance is contributing tremendously to the welfare of mankind.

This study is in the nature of a job analysis and is thereby in accord with current business educational practice of taking cognizance of community requirements and needs. Attempts to determine such needs assume the form of surveys of opportunities, follow-up of graduates, and job analyses. Horn in his BASIC WRITING VOCABULARY of 1926 mentions an instance of word frequency being likened to a job analysis.<sup>1</sup> In his critical analysis of word studies preceding this work, he gives basic assumptions—one of which follows:

Words most frequently needed in the writing done in life outside the school will be found in that writing....this assumption is in the nature of a job analysis—a technique frequently at the base of curriculum changes. The "job" to be analyzed is the typical "job" of writing in life outside the school.

This is a pertinent statement in the case of this word count.

Ribaudo in his thesis advocates specialized secretarial training to fill the need for stenographers skilled in aviation terminology. This was the conclusion reached after describing the importance of the aviation industry and its rapid expansion.<sup>2</sup> In his first chapter, he says: "Aviation secretarial curriculums could be set up on the basis of surveys made in the immediate localities."

Leslie, on the other hand, discussing the teaching of specialized vocabulary,<sup>3</sup> makes this recommendation:

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<sup>1</sup> Ernest Horn. A BASIC WRITING VOCABULARY, University of Iowa Studies in Education, Iowa City, Serial 1, Number 4, 1926, p. 8.

<sup>2</sup> Vincent Ribaudo, op. cit., p. 13.

<sup>3</sup> Louis A. Leslie, op. cit., p. 237.

Spend some time, but not too much, in training the pupils in how to learn the technical vocabulary of whatever business they may enter. If they go into legal or medical offices, they will be helpless without proper text material; and the only answer to their problem is to obtain and study some of the good texts prepared expressly to help such beginning shorthand writers in legal and medical work.

However, if such beginners could study a list of terms selected objectively, mastering spelling, meaning, pronunciation, and shorthand symbol, a more efficient procedure would have been employed.

Leslie scores the practice of covering a number of technical vocabu-  
<sup>1</sup>  
 laries in the closing weeks or months of school. He says:

If the whole final semester could be spent on some one technical vocabulary, satisfactory progress could be made; but under practical teaching conditions there is no way of predicting which vocabulary would be worth so much time and attention. In fact, the only certainty in the situation is that no one technical vocabulary could possibly be worth that much time and attention to any appreciable number of pupils in any one class.

Pursuing the subject of technical vocabulary, Leslie further  
<sup>2</sup>  
 recommends:

It is useless to have students attempt to memorize shorthand outlines for technical word lists without giving attention to the pronunciation, meaning, and spelling of the technical words. To the extent that such useless memorization succeeds, it is likely to be more harmful than useful, leading to such difficulties as the mucous-mucus error...

He continues: "The meaning of technical words is more important to the stenographer than the shorthand outline."

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<sup>1</sup>

Leslie, op. cit., p. 236.

<sup>2</sup>

Ibid, p. 238.



Leslie feels that it is necessary for a medical stenographer to have<sup>1</sup>  
a background of work experience to be able to digest terminology.

In the case of very technical lines of work, such as law, medicine or chemistry, it is necessary to know more than simply words—it is necessary to know something of the field itself in order to have enough background to assimilate the vocabulary.

He compares the problem of assimilating medical terminology to that of mastering the technical vocabulary in the hardware or grocery field, or work of that sort, where in general the vocabulary problem resolves itself into learning the pronunciation, spelling, and meaning of the names of objects. In law, medicine, chemistry, and a few similar lines of work, this is not sufficient, and at least a slight knowledge of the subject matter is required. Only the stenographer who has been on the job for a few months has this necessary background for assimilation.

These frequency lists, therefore, are expected to be of greatest usefulness to the stenographer on the job, though they may be studied in the local high school by those expecting to be employed at the school upon graduation.

The number of medical terms found in the limited count of this study evinces the need for special study of terminology, as well as the number of misspellings and misuse of medical terms encountered. The need for concerted attack is also in evidence if one compares the preparation required of the stenographer of this school with the requisites for the<sup>2</sup>  
medical stenographer or secretary as described by Markwick.

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<sup>1</sup>  
Leslie, op. cit., p. 238.

<sup>2</sup>  
Markwick et al., op. cit, p. 7 - 8.



She gives the requisites stated by physicians for stenographers or secretaries; that an absolute minimum be a four-year high school course, preferably in the college-preparatory curriculum with enough courses in science to know that one has a liking for such work. Studies should include besides English, mathematics, and some exploration in a field that may provide a happy avocation. Two years of college in addition provides an even better foundation. General courses in chemistry and biology are desirable, as also study of sociology and psychology.

Two classes of courses are necessary for training in the sciences:

1. foundational courses in chemistry and in biology, with specialization in quantitative chemical analysis, bacteriology, and human anatomy and physiology; and,
2. a course in laboratory procedures that will include sterilization techniques, the taking of blood counts, the preparation of blood smears, and the analysis of urine.

For training in general secretarial and specialized medical secretarial duties, courses are needed in shorthand and typewriting, in medical terminology and dictation, and in office procedures. Knowledge of French and German is highly recommended by physicians also.

For the reasons listed in the chapter, then, it was decided to make a frequency count of medical terms encountered in ten thousand running words in three types of dictated material--abstracts of case histories, autopsy reports, and x-ray reports; and to present shorthand outlines for these terms.

## CHAPTER II

## REVIEW OF RESEARCH

The several texts for the medical stenographer published by the Gregg Company have received mention in the preceding chapter. Of these, one only was based on actual frequency count. This was the LaViola study which will be here treated in greater detail.

In this study the five thousand most frequently used medical terms in medical correspondence and testimony are listed according to frequency. The listings of words and phrases are kept separate for the two separate classes of dictation. The count is limited to the kinds of medical dictation most commonly written in shorthand from dictation as the study is intended primarily for shorthand writers.

The word list is divided as follows:

Part 1: 2,091 words with shorthand outlines, frequency, and rank, including all words with frequencies of 1,239 to three in the medical correspondence count.

Part 2: 1,446 phrases with shorthand outlines, frequency, and rank, including all phrases with frequencies of 120 to three in the medical correspondence count.

Part 3: 375 words with shorthand outlines, frequency, and rank, including all words with frequencies of 372 to two in the testimony count.

Part 4: 354 phrases with shorthand outlines, frequency, and rank, including all phrases with frequencies of 20 to two in the testimony count.

Part 5: 214 words without shorthand outlines, including all the words

occurring only once in the testimony count.

Part 6: 318 phrases without shorthand outlines, including all the phrases occurring only once in the testimony count.

Part 7: 410 words omitted from the count as unnecessary for the purpose of the count. Most of these words excluded were medical expressions readily familiar to the layman, such as arm, leg, and the like. The author advises, nevertheless, that these terms be practiced since they appear frequently in each day's dictation.

The words and phrases in the medical-correspondence list were found in 1,876 printed letters comprising 300,000 running words in 260 weekly issues of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, covering a period of five years from January 3, 1931, through January 11, 1936. The letters represented questions sent in by subscribers and answered in letters by the editorial staff of the magazine. Counting repetitions, 36,251 medical terms were found in the material exclusive of the words omitted because of probable familiarity to the stenographer.

The words and phrases in the testimony list were found in the printed transcripts of one hundred cases tried in the New York State Supreme Court during an eight-year period from 1928 to 1935. The medical testimony thus analyzed comprised 122,130 running words; and 5,212 medical terms were found including repetitions and excluding the list of common words already mentioned.

The following information indicates the reason for giving the number of times medical terms appear in the dictated matter:

As the 300,000 running words of medical correspondence contained a total of 36,251 medical words including repetitions but excluding the com-

mon words, more than twelve per cent of the total running words were distinctly medical words. That is to say, when taking a 200-word letter from dictation, the stenographer could expect to have to write about 25 distinctly medical words.

As the 122,130 running words of medical testimony contained 5,212 medical words including repetitions but excluding the common words, more than 4.26 per cent of the total running words were distinctly medical words. Thus, in writing 200 words of medical testimony in court, the reporter finds perhaps ten words that are distinctly medical compared with the 25 words that the doctor's secretary finds in the same amount of dictation. This is attributed to the fact that the doctor's correspondence is directed to another doctor, whereas in court the doctor is speaking to a jury of laymen.

The Gregg publishers in the Preface to this study make this  
<sup>1</sup>  
 suggestion:

In order to obtain the most benefit from a word-frequency count, the amount of practice given to the small groups of commonest words must be balanced against the amount given to the large groups of the less common words. The tables indicate to some extent the relative amount of practice that may be devoted to each group.

Humphrey has made a similar observation in his article, "Is Word-  
<sup>2</sup>  
 Frequency Misused?"

...the proper function of the word-frequency count in the selection of shorthand-practice material should be that of insuring that the running material selected is neither

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<sup>1</sup>  
 LaViola, op. cit., p. ii.

<sup>2</sup>  
 Clyde Humphrey. "Is Word-Frequency Misused?" BUSINESS EDUCATION WORLD, May, 1945, p. 469.

restricted to the commonest words nor unduly studded with unusual and infrequent words.

The LaViola study advises the shorthand writer to begin his practice with the words of highest frequency and automatize the high-frequency words much more completely than he can hope to automatize the words of lower frequency. Tables are presented as useful guides in determining the amount of practice to be given each group of outlines in the word lists. In the publishers' judgment relatively few phrases are repeated sufficiently to justify special practice, but large groups of phrases occur, no one of which is frequent but in which a common unit runs through the group, justifying practice on the group.

One of the tables (Table III) shows the most striking example of the value of a word-frequency count in disclosing that nineteen words with their repetitions constitute 45.72 per cent of all running occurrences of medical testimony. The first 102 words with their repetitions represent more than 75 per cent of all the medical words encountered in the one hundred cases.

As before-mentioned, the very fact that the Gregg people express in this preface a desire that someone conduct a count of autopsy and case-record material indicates the limited usefulness of this study to the stenographers of the Wrentham State School. No information is given of methods employed in conducting the count, or the source for recognition of medical terms--either words or phrases.

Four other outstanding word studies will be presented, keeping the words of Leslie in mind that "it behooves the shorthand teacher to be

familiar with each new word count as it appears."<sup>1</sup>

A study recommending itself to one's attention is that of Horn, published in 1926. His purposes were four:<sup>2</sup>

1. To make available a list of the 10,000 words most often used in the writing done in the United States outside of school.
2. To give a summary and a critical evaluation of the various investigations which were utilized in determining this list of words.
3. To discuss the most important problems and techniques involved in this type of vocabulary research.
4. To show how this list of words may be used not only for practical but also for scientific purposes.

Many interesting points of theory underlying vocabulary study are here brought to the fore. For instance, he tells assumptions of preceding studies:<sup>3</sup>

1. Words most frequently needed in the writing done in life outside the school will be found in that writing.
2. In the attempt to discover these words, scientific methods rather than theory should be used.

Fundamental to each investigation was the assumption that the principal need for writing on the part of the average person consisted in writing letters.

He warns against unreliable assumptions such as these:<sup>4</sup>

1. Because a word occurs twelve times in a few lists of

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<sup>1</sup>  
Horn, op. cit., p. 3.

<sup>2</sup>  
Ibid, p. 7 - 8.

<sup>3</sup>  
Ibid, p. 7.

<sup>4</sup>  
Ibid, p. 15



100,000 running words each, it may be expected to recur similarly in any other list compiled in like manner.

2. That a list of the words occurring twelve or more times in a few lists of 100,000 running words will contain all the words apt to occur in other such lists.

Horn's own contribution in this study is 10,000 frequently used words found in a count of 5,136,816 running words. These running words represent the results of the 1922 compilation, consisting of 4,272,482 running words, plus an additional 864,334 running words. The 1926 study is the result of the discovery that the reliability of the counts decreased rapidly after the first thousand words. This exemplifies the literal and statistical truth of Murray's statement that "the circle of the English language has a well-defined center but no discernible circumference."<sup>1</sup>

The count of 1926 is superior because based on an analysis of nearly six times as many running words, and on more numerous and better balanced types of adult writing. It is concerned with the following:<sup>2</sup>

1. The Nature and Extent of the Vocabulary of Business Correspondence.
2. The Nature and Extent of the Vocabulary of Personal Letters.
3. The Vocabulary of the Letters of People of More than Average Ability.
  - a) The Vocabulary of Letters of Well-Known Writers.
  - b) The Vocabulary of Letters Printed in Magazines and Metropolitan Newspapers.

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<sup>1</sup>  
op. cit., p. 23.

<sup>2</sup>  
James Murray. A NEW ENGLISH DICTIONARY, Clarendon Press, Oxford, page XVII. (Quoted from Humphrey, op. cit., p. 467.)

4. The Nature and Extent of Vocabularies of Letters of Application and Recommendation.
5. The Vocabulary of Adult Writing Needs other than Correspondence.
  - a) The Vocabulary of Minutes, Resolutions, and Committee Reports.
  - b) The Vocabulary of the Letters of Excuses Written to Teachers by Parents.
6. The Vocabulary of the Letters of a Single Individual.

A notation made by the author with respect to the amount of material<sup>1</sup> investigated under business letters is significant:

It is possible...that more running words from business letters were tabulated than the importance of this type of writing to the average writer would justify. On the other hand, when it is remembered that misspellings in business are heavily penalized, perhaps these words should be given even greater weight than is accorded them in this list.

Horn in this work sets up rules for insuring consistency in conducting the count. Realizing the importance of derivative forms, he has each word form tabulated separately. Words are indexed according to initial letter on sheets  $8\frac{1}{2}$  by 13 inches and tallied. Any deficiencies that exist in the data from which the 10,000 words are selected, Horn explains either as the result of tabulating various types of writing in wrong proportions, or of omitting the tabulation of some types which should have been included.

Concerning the statistical treatment of results, Horn says:<sup>2</sup>

Since the selection of words in this investigation does not

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<sup>1</sup>  
Horn, op. cit., p. 185.

<sup>2</sup>  
Ibid, p. 185.



represent a true sampling in the statistical sense, it did not seem appropriate to make use of statistical procedures for estimating the reliability of these 10,000 words.

Appraisals of validity and reliability are to be made on the following<sup>1</sup> criteria instead:

1. Amount and variety of material tabulated.
2. Comparison with vocabulary most commonly needed in reading.
3. Comparison with vocabulary commonly needed in speaking.
4. Comparison with vocabulary of other languages.
5. Common-sense judgment.

Setting a circumference of 10,000 words is admitted by the author to have been arbitrary. He says:<sup>2</sup> "Many words outside of this limit are known and used by children of six years of age;...on the other hand, of course, no child of six knows all the 10,000 words printed in this monograph."

An indication of the validity of the count is the amount of overlapping between this list and Thorndike's compilation of 10,000 words, as well as the relative ranks of words in the two lists.

Of this study and the Thorndike-Lorge count which follows, Rinsland<sup>3</sup> says:

The Thorndike study offers our best information of the words used primarily in books, and the Horn study offers our best

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<sup>1</sup> Op. cit., p. 185.

<sup>2</sup> Ibid, p. 186.

<sup>3</sup> Henry Rinsland. A BASIC VOCABULARY OF ELEMENTARY SCHOOL CHILDREN, the Macmillan Company, New York., 1945, p. 4.

information of the words used primarily in the writing of letters, although his study sampled other material.

The Thorndike-Lorge count includes the results of studies of 1921 and 1938, as well as of other counts of over four and one-half million words<sup>1</sup> each. It includes data from the following sources:

1. The Teachers Word Book of 1921.
2. The Thorndike General Count of 1931.
3. The Lorge Magazine Count.
4. The Thorndike Count of 120 Juvenile Books.
5. The Lorge-Thorndike Semantic Count.

The first two emphasize frequency in readers, textbooks, the Bible, and the English classics. The Lorge Magazine Count includes only recent and popular magazines. The Juvenile count includes only books recommended for boys and girls in grades three and eight. The Semantic count used a miscellany of juvenile and adult reading--old and recent, matter-of-fact and imaginative--but omitted school readers and textbooks.

The procedures for carrying on the count are not presented in the book but may be studied in Thorndike's article, "Word Knowledge in the Elementary School," written for the TEACHERS COLLEGE RECORD.<sup>2</sup>

Columns for each of the five different frequency counts are provided, and symbols indicate occurrences.

G—General column, containing a summary of other columns.

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<sup>1</sup> Thorndike and Lorge. THE TEACHER'S WORDBOOK OF 30,000 WORDS, Bureau of Publications, Teachers College, Columbia University, New York, 1944.

<sup>2</sup> E. L. Thorndike. "Word Knowledge in the Elementary School," TEACHERS COLLEGE RECORD, September, 1921, p. 334-370.

T--The Thorndike General Count of 1931.

J--The Thorndike Count of Juvenile Books.

S--The Lorge-Thorndike Semantic Count.

L--The Lorge Magazine Count.

Use of symbols is exemplified by these samples: the figure one (1) in the G column indicates at least one occurrence per million words and not so many as two (2) per million. Two (2) means at least two (2) occurrences per million and not so many as three per million; similarly, up to 49. "A" represents an occurrence of at least 50 per million words and not so many as 100 per million. A double "A" (AA) means the word occurred 100 times or more per million words. "M" in the T column means that the word was one of the commonest by the Thorndike count and occurred from 800 to 100,000 or more times per 4,500,000 words; but in the L column, it indicates that the word occurred 1,000 times.

The lexical unit is employed by Thorndike. Regular plurals, comparatives, and superlatives, verb forms ending in s, d, ed, and ing, past participles formed by adding n, adverbs ending in ly that occur less than once in a million words and equally rare adjectives formed by adding n to names of places are ordinarily counted in under the main word. The<sup>1</sup> general principle followed is: "Every occurrence is counted somewhere; no occurrence is counted twice."

This has been repeatedly pointed out as a limitation of the study, particularly to the teacher of shorthand. Horn criticizes the Cook and

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<sup>1</sup>Thorndike and Lorge, op. cit., p. ix.

O'Shea, which was meant to be helpful in the teaching of spelling in the elementary school.<sup>1</sup> "In a study meant to be a contribution to spelling, derived forms are more important than root forms since almost invariably, they are more difficult to spell.

2

With the shorthand teacher in mind, Leslie writes:

...the Thorndike lists fail to list or count separately most of the derivative forms that are of interest to the shorthand teacher—plurals, past and present participles, and the like. ...the 30,000 words in the Thorndike list represent probably 45,000 words when counted on the Horn basis, with a separate entry for each plural and other similar derivatives.

3

Hartmann says: "Because derivatives constitute so large a part of any language—if one tried to avoid them entirely, one would be left with but a few hundred basic roots."

Among the uses to which the list may be put, Thorndike maintains that it tells anyone wishing to know whether to use a word in writing, speaking, or teaching, how common the word is. The G column constitutes a summary and is usually decisive in this respect. The most important function of the count is guiding the teacher's treatment of the vocabulary problem in a class.<sup>4</sup>

A teacher should decide concerning many words which occur in books or articles to be read by the class whether to

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Horn, op. cit., p. 11-12.

2

Louis A. Leslie. "Thorndike's 30,000 and the Shorthand Teacher," BUSINESS EDUCATION WORLD, June, 1946, Volume 26, p. 526.

3

George W. Hartmann. "Critique of the Common Method of Estimating Vocabulary Size," JOURNAL OF EDUCATIONAL PSYCHOLOGY, May, 1941, Volume 32, p. 352.

4

Thorndike and Lorge, op. cit., p. xi.

have the class learn the word well enough so that the ability to know the sound and the important meaning or meanings of the word when they see it will be a permanent part of their stock of word knowledge or merely inform them of its meaning temporarily so that they can understand and enjoy the reading matter in which it occurs.

In concluding the discussion of the Thorndike-Lorge count, the following<sup>1</sup> observation of Davis is noteworthy.

...there is only a slight tendency for test items to be more difficult as the words being tested become less frequent according to the word count on which the frequency ratings in the TEACHER'S WORD BOOK are based.

...the volume (TEACHER'S WORD BOOK) contains a convenient and useful list of words for many purposes.

He attributes this deficiency in discriminating to the fact that with few exceptions, no separation of the relative frequency of the several meanings that a given word may possess is made in the TEACHER'S WORD BOOK. According to him, therefore, "frequency" ratings cannot be used unservedly as "difficulty" ratings.

The fourth study here to be considered is Rinsland's BASIC VOCABULARY OF ELEMENTARY SCHOOL CHILDREN.<sup>2</sup> Louis Leslie says of this work:

The Rinsland list fits the last missing stone into the arch of information needed by the shorthand teacher; it fills a long-felt want and settles many a heated controversy in the field of shorthand teaching.

This study was undertaken for five reasons:<sup>3</sup>

1. There is no study that has broadly sampled the writings

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<sup>1</sup> Frederick Davis. "The Interpretation of the Frequency Ratings Obtained from the TEACHER'S WORD BOOK," JOURNAL OF EDUCATIONAL PSYCHOLOGY, March, 1944, p. 169.

<sup>2</sup> Louis A. Leslie. "Shorthand Significance of the Rinsland Vocabulary Study," BUSINESS EDUCATION WORLD, December, 1945, Volume 26, p. 207.

<sup>3</sup> Rinsland, op. cit., p. 5.

of children from all sections of the United States in all grades in large numbers that is comparable to the counts of Thorndike (1931) and Horn (1926).

2. No study gives continuous data for all eight grades.
3. No published study gives raw frequency, that is, actual number of times a word occurs in each grade.
4. No published study groups words in each grade into groups of practical sizes for general use, such as the first hundred, and so forth.
5. No study gives a measure of comparable frequency of occurrence from grade to grade, such as per cent, per mill, or per hundred thousand running words (the unit used in this study).

The inflectional unit is employed in this study, as also by Horn.

To assure uniformity of treatment of data, rules for tabulating were devised:

1. Count all words--roots, derived forms, abbreviations, and contractions--just as they occur.
2. Tally separately run-together words.
3. Delete baby talk unless terms are found to be good English words.
4. Delete illegibles.
5. Count the correct forms intended when words are spelled unusually or wrongly.
6. Delete slang, provincialisms, colloquial expressions, as determined by the dictionary; as well as trade names and

proper names of persons and places, except very well-known terms.

7. Do not tally separately words that may be written in two ways, but consider them the same for purposes of tabulation.
8. Tabulate the correct forms intended when errors occur in the use of homonyms. Two, too, and to are to be tabulated separately.
9. Tabulate separately words that are compounded if the compounding is incorrect or is used for running composition.

The general method employed in counting the frequencies of words was this:

1. The papers were sorted by grades.
2. The papers were read, and selection was made for content.
3. The alphabet was divided by key words, which were mimeographed in widely spaced positions on several sheets of paper  $8\frac{1}{2}$  by 11 inches. Words were then recorded from original papers.
4. The accumulated words were transferred to large combining sheets, each of which held from one to two thousand words.
5. Totals from the combining sheets were entered directly in permanent ledgers already containing accumulated words from previously published lists.
6. At every step, totals of running words and totals of different words were balanced to see that no errors were



made in tallying, copying, and adding of totals.

Of the findings, Rinsland says:<sup>1</sup> "One of the most striking facts discovered after all tabulations were completed is the very large number of different words from a count of 6,012,359 running words."

The author feels that this vocabulary should furnish much more than 90 per cent of the words for grade eight, and perhaps much more than 98 per cent of the words for grade one—with the percentages for the other grades falling between these limits.<sup>2</sup> He states: "The large number of words given in this list beyond the first thousand should be a useful vocabulary for the middle and advanced grades." He concludes that almost any word might be used by children if its meaning is understood, and if it comes within the subject of writing.<sup>3</sup> He further observes:

It is definitely consistent with the psychology of individual differences and the common scientific observation that ranges objectively determined are almost always wider than those subjectively estimated.

The last vocabulary study is here summarized because of its particular importance to the business teacher. It is Horn and Peterson's BASIC VOCABULARY OF BUSINESS LETTERS,<sup>4</sup> published by the Gregg Company. This work was anticipated in A BASIC WRITING VOCABULARY of 1926.<sup>5</sup>

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<sup>1</sup> Rinsland, op. cit., p. 9-10.

<sup>2</sup> Ibid, p. 17.

<sup>3</sup> Ibid, p. 20.

<sup>4</sup> Horn and Peterson. THE BASIC VOCABULARY OF BUSINESS LETTERS, Gregg Publishing Company, Boston, 1943.

<sup>5</sup> Horn, op. cit., p. 191.



While the counts in the present investigation are sufficiently extended (twenty-six classes of business and 1,538,487 running words) to afford the basis for determining a general business vocabulary, the counts for each business are not large enough in most cases to show in a reliable way the vocabulary for that business. A large count for each main class of business would afford a basis for special vocational lists.

The authors present the lower frequency limits of the compilation of 1922 of the first five 1,000 word groups. This business-letter count is based on data secured from twenty-six large classes of business. The average different number of firms included in each class is six. The total number of running words is not the same for each of the twenty-six different classes of business. It seemed obvious to the authors from a study of the data tabulated under the twenty-six groups, that not merely the total number of classes of business correspondence in which any word occurred was important, but also total frequencies. A method of weighting was devised since there was no standardized method of combining these two factors. This method was to multiply the frequency by the square root of the number of concerns in which the words were found. Most of the words used with high frequency in the letters of any business were also found in letters of other classifications of business.

The two studies of Horn reviewed in this chapter are of considerable value to the shorthand teacher because of their listing of derivative forms. They are valuable, too, because they deal with letter-writing needs of adults--especially with the letter-writing needs of business men, an issue of prime concern to the business teacher.

In concluding, some mention should be made of the methods of conducting word counts found to be favored by the Gregg Company.

Leslie, after recommending the source for recognition of an aviation term in order to give objectivity to the study, suggests the number of running words necessary to render the study valid; he then goes into the<sup>1</sup> procedure for conducting the count:

...all that remains to be done is to read the letters, making a 3 x 5 filing card for each aviation term, and at the same time keeping at least an approximate tally of the number of running words of letters you have counted.

Zoubek in his business-letter phrase-frequency count recounted in<sup>2</sup> the BUSINESS EDUCATION WORLD tells us this:

As a basis for this study, the phrase content of 1,469 letters representing 250,143 words, was analyzed. These letters represented more than fifty different lines of business. Each phrase was written on a card each time that it occurred. The cards were alphabetized and the duplicates eliminated. The phrases were then arranged in order of frequency.

Implicit in every study here reviewed is the realization of the worth of objective measurement in the determination of vocabulary needs. Each study is useful not only for its content, but as a basis for further research. The studies possess a degree of reliability and validity which cannot be ascribed to a subjective estimate.

With this understanding of the worth of word studies, it is the purpose of this study to determine by such objective means a medical vocabulary for the stenographers of an institution for the feeble-minded.

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<sup>1</sup>  
Ribaudé, op. cit., p. 7A.

<sup>2</sup>  
Charles E. Zoubek. "Business-Letter Phrase-Frequency Count," BUSINESS EDUCATION WORLD, February, 1948, Volume 28, p. 356.

The ensuing chapters disclose methods and procedures used in conducting the count, findings, and conclusions drawn as a result of findings, as well as discussion of limitations and need for further research.

## CHAPTER III

## METHODS AND PROCEDURES

With the permission of Dr. C. Stanley Raymond, Superintendent of the Wrentham State School, and the cooperation of Miss Greeley, his secretary, this word-frequency count was conducted on the premises of the school.

The three types of material—abstracts, autopsy reports, and x-ray reports—were obtained from the files of the school. Autopsy and abstract materials were found in the "Discharged" files in the basement of the general office. X-ray material was filed in the office of the stenographer in the Clinical Building (the Wallace Research Laboratory). The "Discharged" files were those dated 1940 to 1950, and folders were filed alphabetically within them. Since the case folders of those who died in the institution were included in these "Discharged" files, autopsy reports were to be obtained from these same files.

Folders were removed from these files, observing the alphabetic ordering both for the count of abstract material and autopsy reports. The first folder removed began with the initial "A." Actual running words counted for abstracts amounted to 10,727. This consisted of eight complete abstracts.

The running words counted in autopsy reports added to 11,514. This represented twelve complete autopsy reports.

X-ray reports were filed by date—last date first—in the office of the Clinical-Building stenographer. Each report covered a two-week period. Running words counted in this investigation amounted to 10,178. This

comprised twelve x-ray reports, covering a period of six months from July 23, 1947, to December 22, of the same year.

This meant that a total of 32,419 words were investigated for the three types of medical dictation most heavily charged with medical terminology in this school. (See Table I, page 44.)

Dorland's AMERICAN MEDICAL DICTIONARY was selected as the source for the recognition of a medical term for this count. This accorded with the<sup>1</sup> suggestion of Leslie:

The next decision relates to the identification of aviation terms. What is an aviation term? As a practical matter, you will probably be able to recognize subjectively the aviation terms in the correspondence count. For thesis purposes, however, you would have to have an objective definition. My suggestion would be that you get the largest available dictionary and arbitrarily say that any word contained therein would be recognized in your count.

An alphabetical indexing was made on sheets 8 $\frac{1}{2}$  by 11 inches--a separate set of such sheets being set up for the three different classes. Before any other rules were formulated--beyond that of deciding the source for recognition of medical terms--a plan for guaranteeing the inclusion of every medical term accepted by the source had to be made.

It was decided to approximate the number of pages constituting 10,000 running words in each class of medical dictation and to make a preliminary survey of each set of 10,000 for medical terms. Autopsy reports were analyzed first. Every term immediately recognized as medical was recorded under the corresponding letter of the alphabet on the indexed sheets; also, every questionable term. No attempt was made at tallying for this class

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<sup>1</sup>  
Ribaud, op. cit., p. 7A.

TABLE I  
NUMBER OF RUNNING WORDS INVESTIGATED  
IN THIS WORD-FREQUENCY COUNT

<u>Classifications</u>	<u>Number of Running Words Investigated</u>
Abstracts	10,727
Autopsies	11,514
X-Ray Reports	10,178
Total	32,419

of dictation or for either of the other two in this preliminary procedure. The same procedure was used in surveying abstract and x-ray material.

The adoption of this procedure disclosed several facts:

1. The dictionary included terms readily familiar to the layman, such as names of parts of the body--arm, ankle, abdomen, and the like.
2. Every derivative form of a medical term was not to be found in the source.
3. It could not be determined without constant recourse to the AMERICAN MEDICAL DICTIONARY which terms not immediately recognizable as medical would be included in that source.
4. The omission of plurals, because these derivative forms did not appear in the source, or of the third person, singular, present tense of verbs, would deprive the count of many important medical terms.
5. Certain phrases appearing in the count were to be found in the source.
6. The "Anatomical Diagnoses" and "Cause of Death" sections of the autopsy reports sometimes consisted of long Latin phrases.
7. Misspellings, misuse of homonyms, and other wrong uses of medical terms were discovered.
8. Some of the terms found in the medical material did not fit the definitions as given in the dictionary.

Before concluding this preliminary survey of materials, every term had to be checked individually against the source to justify its inclusion in the count. The findings reported above effected a decision as to the rules that would have to be set up before conducting the count. The rules formulated were as follows:

1. The AMERICAN MEDICAL DICTIONARY of Dorland was to be the source for the recognition and inclusion of all medical terms encountered with the following adaptations:
  - a) The plural of nouns appearing in the source would be included.
  - b) The third person singular, present tense of verbs appearing in the source should also be included.
2. Terms appearing in the source but not fitting any of the definitions would be omitted from the count.
3. Certain terms deemed readily familiar to the layman should receive separate listing without count.
4. Three separate frequency counts should be made for each of the three sets of dictated material.
5. The system to be employed in conducting the count should be that of tallying.
6. Phrases listed in the dictionary would be listed and tallied as one term.
7. Misspellings or wrong word usage among medical terms would be corrected.
8. Homonyms among medical terms misused in these materials would be replaced by the correct form.



9. Abbreviations would be written in full.
10. The Latin expressions for "Anatomical Diagnoses" and "Cause of Death" would be recorded separately, where such expressions could not be found in the dictionary.

When these rules had been set up, actual count began. Terms ascertained to be medical by check against the source in the preliminary survey were transferred to three separate sets of sheets for abstracts, autopsies, and x-rays. These sheets were  $8\frac{1}{2}$  by 11 inches and were alphabetically indexed. In counting terms, a small vertical mark was made beside medical term for each occurrence. For each fifth occurrence, a diagonal was drawn through the four vertical marks.

Running words were determined in the following manner. The number of inches to the half inch of the average line on a page of typewritten material was measured. This result was multiplied by ten (10) since there are ten strokes to an inch of pica print. (All the material covered in this count was in pica print.) This product was multiplied in turn by the number of lines to the page. From the result was subtracted the sum of indentations and incomplete lines found in the same manner; i. e., number of inches multiplied by ten (10). This result was divided by five, allowing five strokes for the standard word in pica print. This gave the number of standard words to a page. This method of conducting the count was necessitated by the unevenness of the material to be counted for running words. (See Appendix B, 1, 2, and 3.) Paragraph headings containing medical terms were added to the total number of strokes found for the page before dividing by five.

Observing the rules drawn up for the count, the investigation was effected on the premises of the school. When the count of dictated material under the three separate classifications was completed, the work to be done on the premises was concluded.

Three frequency lists were to be set up for abstracts, autopsies, and x-ray reports. On these lists the most frequently occurring medical terms would be listed first, the rest following in descending order. An alphabetical listing would then be made for convenience in finding corresponding shorthand outlines. These outlines would not be presented in the frequency lists.

Tally marks were totaled for each term. All frequency figures were listed on sheets  $8\frac{1}{2}$  by 11 inches for each set of dictation. Terms occurring, but once, were also included. Medical terms were then listed alphabetically under the appropriate frequency figure.

An alphabetical listing of all terms found in the three counts was made, and shorthand outlines where found given. Shorthand outlines were sought in three sources. Outlines not presented for certain plurals of nouns or for the third person singular of verbs, present tense, were also presented. Shorthand outlines were also given in the listing of familiar terms not included in the count.

The following chapter will present the results of this count. It will present seven lists:

1. Common Medical Terms Omitted from this Count.
2. Phrases included in this Count.
3. Latin Phrases Found in this Study (not found in the source).

4. Frequency Count of Abstract Terms.
5. Frequency Count of Autopsy Terms.
6. Frequency Count of X-ray Terms.
7. List of Terms Found in this Study with Shorthand Outlines.

Lists four, five, and six are the results of the frequency count.

List seven is the alphabetic list of all medical terms in the three separate counts.

CHAPTER IV  
RESULTS OF THE WORD-FREQUENCY  
COUNT

These are the results of the word-frequency count conducted at the Wrentham State School. Findings are presented in seven lists.

List I contains seventy (70) medical terms for parts of the body. The terms were judged sufficiently familiar to the layman and easy for the shorthand writer to be excluded from the count. However, shorthand outlines were presented with the words of the Gregg publishers in mind.<sup>1</sup> "Although they (these common words) were not included in the count, they should nevertheless be practiced because most of them are frequently used in any type of medical dictation." All but seventeen (17) are to be found in the LaViola listing of common terms.

List II contains thirty-six phrases counted as units in this study. These phrases were selected arbitrarily. They all appear in the AMERICAN MEDICAL DICTIONARY.

List III presents ten Latin phrases that are not to be found in the source for recognition of medical terms. They were listed under "Anatomical Diagnoses," "Clinical Diagnoses," and "Cause of Death." Their inclusion adds to the over-all picture of the type dictation, the prospective stenographer might expect.

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<sup>1</sup>  
LaViola, op. cit., p. 11.

List IV gives the medical terms found in the dictation of case abstracts. The number of such terms is 313.

List V contains medical terms found in autopsy dictation; it comprises 450 terms.

List VI contains medical terms found in dictation of x-rays and consists of 305 terms.

This gives a total of 1,068 terms found in the three separate counts. (See Table II, page 52.) However, because the vocabularies of the three types of dictation overlap, List VII shows actually 828 terms found.

List VII is an alphabetic listing of all the medical terms found in this count of the three class of dictation. It contains 832 terms. Three terms are included, which did not appear in the count; they are the more technical names for terms familiar to the layman. They are cicatrix for scar, deglutition for swallowing, and lamina for tables. One other term--mongoloid--is included, though not in the AMERICAN MEDICAL DICTIONARY, because it appears more frequently than mongolian in this institution.

Three sources were used for shorthand outlines: the GREGG MEDICAL SHORTHAND MANUAL, the GREGG SHORTHAND DICTIONARY, and the 5,000 MOST-USED MEDICAL TERMS by LaViola. One term--coronal--was found in a different reference--the ROBERTS MEDICAL HANDBOOK.

TABLE II  
NUMBER OF MEDICAL TERMS FOUND  
IN THIS STUDY

Abstracts	313
Autopsies	450
X-Ray Reports	306
Total	1,068

## LIST I

Common Medical Terms Omitted FromThis Count

abdomen

ab

ankle

an

appendix

ap

arm

ar

back

ba

belly

be

bladder

bl

blood

bl

body

bo

bowel

bo

brain

br

breast

br

cheek

ch

chest

ch

ear

ea

elbow

el

eye

ey

eyeball

ey

eyebrow

ey

eyelash

ey

eyelid

ey

face

fa

finger

fi

foot

fo

forearm

fo

forehead

fo

gall

ga

gall bladder

ga

gland

gl

hair

ha

hand

ha

head

he

heart

he

heel

he

hip

hi

index finger

in

intestine

in

jaw
















ja

joint

jo

kidney

ki

knee   
 leg   
 lip   
 liver   
 lung   
 mouth   
 muscle   
 neck   
 nerve   
 nipple   
 nose   
 palate   
 palm   
 pupil   
 rib 

scalp   
 shoulder   
 shoulder blade   
 skin   
 skull   
 spine   
 stomach   
 thigh   
 throat   
 thumb   
 toe   
 tongue   
 tooth   
 trunk   
 wrist 



## LIST II

Phrases Included in This Count

appendices epiploicae	galea aponeurotica
ascending colon	Gram's stain
Binet's test	Hinton test
Bouin's fluid	major labia
blood count	minor labia
blood pressure	otitis media
chicken pox	pediculus capitis
Colles' fracture	pia arachnoid
crista Galli	rigor mortis
descending colon	Schick test
Dick test	sella turcica
Doderlein's bacillus	specific gravity
dorsum sellae	spina bifida
ductus Botalli	spinal canal
foramen Botalli	spinal cord
foramen magnum	Sylvian fissure
foramen ovale	transverse colon
Tuberculin Patch test	
whooping cough	

## LIST III

Latin Phrases Found in This Study

colon ascendens

colon descendens

colon transversum

cordae tendinae

dislocatio vesicae urinariae

morbus Hirschsprungii

myotonia dystrophia

paralysis spastica extremitatum inferiorum

septum intra-auriculare

status epilepticus

## LIST IV

Frequency Count of Abstract Terms

<u>38</u>	oculist	patient
negative	paralysis	reaction
<u>17</u>	Schick test	specific gravity
mental	typhoid	stain
<u>16</u>	<u>6</u>	staining
diagnosis	alignment (alinement)	sugar
normal	cells	tone
<u>12</u>	maternal	urine
hospital	maxillary	infirmary
<u>11</u>	mucous	<u>4</u>
family	urinalysis	cavity
spastic	Wassermann	chronic
vaccination	weight	dental
<u>10</u>	<u>5</u>	deposit
tests	acid	gingivitis
<u>9</u>	albumin	gynecological
birth	defective	outpatient
occlusion	deformities	physical
positive	Diok test	regular
<u>8</u>	cell	siblings
clinic	Hinton test	test
color	laryngologist	tonsils

3

abnormal  
alternating  
base  
convulsions  
doctor  
epithelial  
extractions  
extremities  
general  
gonococcus (GC)  
health  
imbecile  
leukocytes  
moron  
paraplegia  
polymorphonuclear (PMN)  
psychopathic  
reflexes  
refractive  
scar  
squamous  
strabismus  
tonsillitis

2

abrasion  
abnormalities  
accident  
active  
acute  
bacteria  
bacteriological  
Binet's test  
blood count  
bronchitis  
brow  
cavities  
centimeters (cm.)  
cerebral  
cerumen  
cervical  
clinical  
coarse  
complaint  
congenital  
dentist  
differential  
disease

diseases  
dysmenorrhea  
eosinophils  
folds  
gonorrhea  
gram (gm.)  
hemiplegia  
hemoglobin  
hyperopic  
idiocy  
immunization  
infantile  
inoculation  
internal  
lymphs  
male  
media  
median  
microcephalic  
movements  
nerve  
organic  
period  
pregnancy

pregnant	arthritis	convergent
premature	aspect	convulsion
pus	astigmatism	coordination
retardation	athetoid	cyanosis
retinal	axillae	cyanotic
scars	basophils	death
simple	blind	deformity
transitionals	blood pressure	delivery
tremor	brachycephalic	dentition
trophic	breech	developmental
twin	buccal	digestive
vision	buttocks	dilation
whooping cough	cancer	disco
<u>1</u>	caries	discs
abscesses	cartilage	discharge
accommodation	catamenia	dispensary
acne	catamenial	Doderlein's bacillus
adenoids	cervix	drums
anemic	chicken pox	eczema
angle	childhood	erratic
anomalies	coitus	external
anterior	cold	eyegrounds
appetite	compound	facies
arrhythmia	conjunctivitis	fever

filling	laboratory	murmurs
fillings	lateral	musculature
findings	lenses	mute
fissures	lesions	nasal
flows	leukorrhea	nervous
fluid	lice	nits
forceps	linear	occipital
formation	lobules	organism
Gram's stain	manic-depressive	organisms
gross	mastoiditis	origin
hemorrhage	maternity	orthopedic
hernia	measles	otitis media
homatropine	meatus	popular
idiot	membrana	paralytic
ill	method	patellar
impacted	menorrhagia	pathology
infection	mercuochrome	pediculi
infestation	metorrhagic	pediculosis capitis
infirmity	midwife	periods
inspection	minor labia	perversions
irises	miscarriage	pervert
irregular	miscarriages	phenylpyruvic
jerks	micropurulent	pigmentation
labor	mucoid	platelets

postnatal	squint
posterior	stigmata
pregnancies	stillborn
presentation	subnormal
prognathism	sunburn
psychosis	surgical
pubic	symptoms
pyriform	syphilis
rape	systolic
refraction	swallowing
region	thrombosis
rickets	thyroid
scabies	treatment
scaphoid	tuberculin patch test
scapula	tympani
scapulae	tympanitic
scoliosis	umbilical
secretion	unconscious
sex	urethra
sinus	visual
sinuses	x-ray
skeletal	
specimen	
speculum	

## LIST V

Frequency Count of Autopsy Terms

<u>47</u>	fat	<u>12</u>
grams (gm.)	lobe	lobes
<u>38</u>	tissue	testicles
centimeters (cm.)	<u>21</u>	thymus
<u>35</u>	normal	<u>11</u>
calvarium	<u>19</u>	hemorrhages
cavity	color	incision
<u>31</u>	thyroid	<u>10</u>
formalin	<u>18</u>	death
<u>30</u>	pancreas	infiltration
surface	<u>16</u>	mental
<u>28</u>	thoracic	ovaries
abdominal	<u>15</u>	posterior
<u>27</u>	spinal cord	tuberculosis
pituitary	<u>14</u>	ventricle
<u>24</u>	adrenals	<u>9</u>
adrenal	hemorrhagic	atrophy
spleen	mitral	convexity
valve	<u>13</u>	degeneration
<u>23</u>	atrophic	diaphragm
autopsy	congested	dura



medulla	temporal	masses
omentum	<u>6</u>	membrane
tricuspid	capsule	mesocolon
weight	clinical	organs
<u>8</u>	diagnoses	processes
capacity	engorged	pulmonary
congestion	leptomeninges	suture
crepitant	occlusion	tubercular
cusps	parietal	<u>4</u>
fibrotic	pericardial	axilla
<u>7</u>	postmortem	bilateral
adhesions	pubic	center
anterior	region	cerebral
aortic	sac	clinoid
cerebellum	sternum	clots
cortex	sutures	columns
diagnosis	vessels	foramen Botalli
diameter	<u>5</u>	infantile
frontal	bile	inspection
negative	colon	medial
occipital	dichromate	microcephalic
parenchyma	hemisphere	microcephaly
sagittal	intestinal	patterns
subcutaneous	liquid	pelvis

peritoneum	cystic	necrosis
pleura	descending	nodules
pleural	duodenum	orbit
process	extension	ossification
sinus	external	patent
tuberculous	facies	pelvis
valves	fibrous	pharynx
ventricles	fluid	rigor mortis
wall	foramen magnum	septum
<u>3</u>	hyperemia	spinal
anomalies	hypertrophy	Sylvian fissure
aorta	induration	symmetrical
arch	injected	thenar
areas	internal	trachea
artery	irregular	uterus
atelectatic	iris	vertebral
basis	lateral	<u>2</u>
Bouin	male	abnormal
Bouin's fluid	margin	adhesive
cavities	meningeal	atheromatosis
centimeter (cm.)	mesentery	atony
convolutional	microscopic	bronchopneumonia
crepitation	mongolism	capillaries
curvature	musculature	cavernous

chronic	indurated	pneumonia
clivus	intercostal	porencephaly
collapse	kyphoscoliosis	precentral
colloid	lipomatosis	pulpa
compression	lividity	residuals
congenital	lobules	rigidity
congestive	lumbar	roofs
cornea	marrow	sclerotic
cyanosis	masseter	scrotum
cyanotic	mechanical	section
depressed	microgyria	segments
depression	miliary	sella turcica
dilatation	mucosa	sex
displacement	nephritis	sigmoid
dolichocephalic	obesitas	space
edema	optic	spastic
erysipelas	paralysis	specimen
facial	parathyroid	splanchnomy
fontanel	parieto-occipital	subarachnoid
glandular	pathology	superior
helix	penis	testicle
hemorrhage	pericardium	translucent
hepatization	peritonitis	ulceration
hypostatic	plaques	ulcers

umbilicus	bronchi	depressions
urine	bronchioli	descending colon
valgus	bronchopneumonic	developmental
vertebrae	bulb	diploe
volvulus	buttocks	distention
<u>1</u>	calcification	distortion
acini	capillary	dorsum sellae
adheres	caverns	duct
air	cecal	ductus Botalli
antihelix	colitis	dystrophy
apertures	configuration	ensiform
apex	consolidation	epididymis
appendices epiploicae	convolution	epidural
arachnoid	convolutions	exostosis
area	corneae	extremities
areolar	coronal	exudate
ascending colon	costal	exudations
asthenic	cribriform	falx
atlas	crista Galli	feces
auto-intoxication	cusp	female
axillary	debris	fibers
axis	deformity	fibrosis
brachycephalic	degenerative	fissure
brachycephaly	dehydration	fissures

fixation	idiocy	marginal
flexion	ileus	mediastinum
fluctuating	ilium	medullary
focal	immediate	meninges
focus	impregnates	meningioma
foramen	incisions	meningitis
foramen Botalli	incisors	minor labia
fracture	indication	necrotic
galea aponeurotica	infection	nodule
ganglia	infectious	notch
gelatinous	inferior	nutritional
general	interventricular	obese
gonadal	intraventricular	obesity
gonads	iodine	obstruction
granular	ischium	olfactory
gross	jaundice	organ
gyri	lambdoid	osteomalacia
hemispheres	leptomeningitis	pachymeningitis
hepatitis	lesion	palpebral
hilus	lipoids	pathologist
hydrocephaly	lobar	pattern
hypertrophic	lumen	pectoral
hypogonadism	major labia	pericarditis
hypoplasia	mammillary	perihepatitis

perimetritis	serous	tubes
perimetrium	sinuses	vascular
peripheral	solution	vegetations
peritoneal	spinal canal	veins
physical	squama	ventricular
pia arachnoid	status	vessel
pigmentation	sternal	zygomatic
pleurisy	supinators	
plica	surfaces	
poles	surgical	
pons	symphysis	
prepuberty	syndactyly	
prominence	table	
pulmonaries	thorax	
pylorus	thrombosis	
rectum	thrombi	
retrocecal	thyroidal	
roof	tissues	
ruptures	tragus	
sacral	transverse	
scaphoid	transverse colon	
scapulae	transversum	
sclerosis	trochanter	
sections	tube	

## LIST VI

Frequency Count of X-Ray Terms

<u>103</u>	<u>23</u>	<u>13</u>
fracture	infraclavicular	apex
<u>78</u>	<u>22</u>	fluid
tuberculosis	base	linear
<u>44</u>	<u>19</u>	process
negative	congenital	<u>12</u>
<u>41</u>	disease	nodes
dislocation	infection	normal
<u>35</u>	<u>18</u>	<u>10</u>
region	shadows	area
<u>32</u>	<u>17</u>	basal
hilar	injury	densities
<u>31</u>	lumbar	distal
abnormalities	<u>15</u>	mediastinum
infiltration	regions	<u>9</u>
<u>30</u>	<u>14</u>	bronchitis
fields	active	cavity
<u>28</u>	calcification	healing
findings	displacement	metacarpal
<u>25</u>	field	pleura
density		

<u>8</u>	indication	pressure
apices	malleolus	prominence
bronchiectasis	osteomyelitis	residual
diameter	parenchyma	x-ray
diaphragm	spina bifida	<u>3</u>
<u>7</u>	<u>4</u>	aorta
epiphyseal	abnormality	areas
localized	angle	arthritis
pneumonitis	angulation	cardiac
respiratory	cavitation	carpal
<u>6</u>	cavities	comminuted
bases	cervical	consolidation
dorsal	chronic	descending
lateral	coarse	diaphragms
medial	costophrenic	diffuse
pelvis	cranial	epicondyle
posterior	external	erosion
sella turcica	foci	femur
vertebrae	interstitial	humerus
<u>5</u>	mandible	hypertrophic
bilateral	minimal	inflammatory
centimeters (cm.)	mottling	lesion
diagnosis	phalanges	lobe
hilum	pneumonic	margin







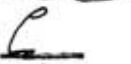


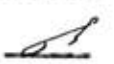
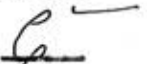


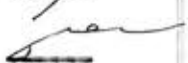

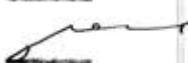







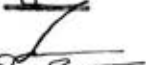



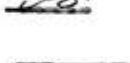











metatarsal	atelectasis	paracardiac
metatarsus	auricular	parietal
nasal	axillary	patient
peripheral	bursitis	phalangeal
pneumonia	callus	phalanx
radius	centers	pituitary
regression	clavicle	positive
resolution	clinical	premolars
tissue	configuration	processes
tissues	contour	roof
tuberculous	contours	root
tumor	deformity	sacral
virus	depression	sacro-iliac
<u>2</u>	dorsum sellae	sagittal
abdominal	effusion	space
absorption	emphysema	sternum
accessory	formation	swelling
acetabulum	fractures	subluxation
acute	lesions	surfaces
alignment (alinement)	loop	tables
anterior	molar	thorax
apical	obtuse	tibia
apposition	occipital	transposition
articular	orbital	transverse

ulna	clinoid	granuloma
union	clinoids	growth
vertebral	colon	haustral
<u>1</u>	Colles' fracture	hemorrhage
abnormal	congestive	hernia
abscess	cortex	herniation
acromioclavicular	cortical	histoplasmosis
adhesion	crest	homogeneous
aeration	curvature	hypertrophy
anomalies	demineralization	iliac
anteroposterior	deviation	impacted
arch	diaphragmatic	impaction
arrested	distortion	infarct
aspect	dorsolumbar	irregular
asthma	emphysematous	intercurrent
atypical	enemas	internal
auricle	epiphysis	interspace
basis	etiology	intrasellar
bicuspid	exostosis	junction
blebs	fibrotic	kyphoscoliosis
calvarium	focus	kyphosis
cathartic	fragmentation	lead
centimeter (cm.)	frontal	lordotic
clavicular	functional	malformation

masses	pyogenic	tenderness
mastoid	reaction	terminal
metastatic	reduction	trachea
metatarsals	residue	tubercular
mitral	restoration	tuberculous
molars	rheumatic	ventricular
node	rickets	viscera
oblique	rudimentary	x-rays
obliteration	scoliosis	zone
origin	segment	
osseous	sella	
osteoporosis	shadow	
paraplegia	shaft	
patellae	spasm	
pedicles	spastic	
periapical	specific	
peribronchial	spur	
periostitis	spurs	
periphery	sputum	
phase	status	
physical	substance	
pleural	supraclavicular	
poisoning	symphysis	
primary	symptoms	

## LIST VII

LIST OF TERMS FOUND IN THIS STUDY  
WITH SHORTHAND OUTLINES

<u>A</u>			
abdominal		adenoids	
abnormal		adheres	
abnormalities		adhesion	
abnormality		adhesions	
abrasion		adhesive	
abscess		adrenal	
abscesses		adrenals	
absorption		* aeration	
accessory		air	
accident		albumin	
accommodation		alignment <sup>1</sup>	
acetabulum		alternating	
acid		anemic	
acini		angle	
acne		angulation	
* acromioclavicular		anomalies	
active		anterior	
acute		anteroposterior	
		* antihelix	



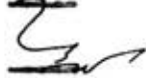












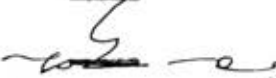







<sup>1</sup>  
Spelled "alinement" in the AMERICAN MEDICAL DICTIONARY and the La Viola study.




















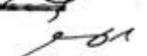


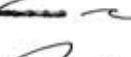

aorta	<u>a</u>	atelectatic	<u>a</u>
aortic	<u>a</u>	* atheromatosis	<u>a</u>
apertures	<u>a</u>	* athetoid	<u>a</u>
apex	<u>a</u>	* atlas	<u>a</u>
apical	<u>a</u>	atony	<u>a</u>
* apices	<u>a</u>	atrophic	<u>a</u>
* appendices epiploicae	<u>a</u> <i>Ch E</i>	atrophy	<u>a</u>
appetite	<u>a</u>	atypical	<u>a</u>
apposition	<u>a</u>	auricle	<u>a</u>
arachnoid	<u>a</u>	* auricular	<u>a</u>
arch	<u>a</u>	auto-intoxication	<u>a</u>
area	<u>a</u>	autopsy	<u>a</u>
areas	<u>a</u>	axilla	<u>a</u>
* areolar	<u>a</u>	* axillae	<u>a</u>
arrested	<u>a</u>	axillary	<u>a</u>
arrhythmia	<u>a</u>	axis	<u>a</u>
artery	<u>a</u>	<u>B</u>	
arthritis	<u>a</u>	bacteria	<u>b</u>
articular	<u>a</u>	* bacteriological	<u>b</u>
ascending colon	<u>a</u>	basal	<u>b</u>
aspect	<u>a</u>	base	<u>b</u>
asthenic	<u>a</u>	bases	<u>b</u>
asthma	<u>a</u>	basis	<u>b</u>
astigmatism	<u>a</u>	* basophils	<u>b</u>
atelectasis	<u>a</u>	bicuspid	<u>b</u>

bilateral	<u>Can</u>	<u>C</u>	
bile	<u>b</u>	calcification	<u>b</u>
* Binet's test	<u>bs</u>	callus	<u>b</u>
birth	<u>b</u>	* calvarium	<u>b</u>
blebs	<u>b</u>	cancer	<u>a</u>
blind	<u>b</u>	capacity	<u>b</u>
* Bouin	<u>b</u>	capillaries	<u>b</u>
* Bouin's fluid	<u>b</u>	capillary	<u>b</u>
blood count	<u>b</u>	capsule	<u>b</u>
blood pressure	<u>b</u>	cardiac	<u>b</u>
* brachycephalic	<u>b</u>	carpal	<u>b</u>
* brachycephaly	<u>b</u>	cartilage	<u>b</u>
* breech	<u>b</u>	catamenia	<u>b</u>
bronchi	<u>b</u>	* catamenial	<u>b</u>
bronchiectasis	<u>b</u>	cathartic	<u>b</u>
* bronchioli	<u>b</u>	* cavernous	<u>b</u>
bronchitis	<u>b</u>	caverns	<u>b</u>
bronchopneumonia	<u>b</u>	* cavitation	<u>b</u>
* bronchopneumonic	<u>b</u>	cavities	<u>b</u>
brow	<u>b</u>	cavity	<u>b</u>
buccal	<u>b</u>	* cecal	<u>b</u>
bulb	<u>b</u>	cell	<u>b</u>
bursitis	<u>b</u>	cells	<u>b</u>
buttocks	<u>b</u>	center	<u>b</u>

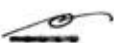



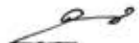








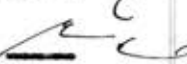

































centers  
centimeter  
\* centimeters  
cerebellum  
cerebral  
\* cerumen  
cervical  
cervix  
chicken pox  
childhood  
chronic  
cicatrix  
clavicle  
\* clavicular  
clinic  
clinical  
\* clinoid  
\* clinoids  
\* clivus  
clots  
coarse  
coitus  
cold  
colitis

collapse  
Colles' fracture  
colloid  
colon  
color  
columns  
comminuted  
complaint  
compound  
compression  
configuration  
congenital  
congested  
congestion  
congestive  
conjunctivitis  
consolidation  
contour  
contours  
convergent  
convexity  
convolution  
convolutions  
\* convolucional

convulsion   
 convulsions   
 coordination   
 cornea   
 \*corneae   
 coronal   
 cortex   
 cortical   
 costal   
 \*costophrenic   
 cranial   
 crepitant   
 crepitation   
 crest   
 cribriform   
 \*crista Galli   
 curvature   
 cusp   
 cusps   
 cyanosis   
 cyanotic   
 cystic   
D  
 death 

\* debris   
 defective   
 deformities   
 deformity   
 degeneration   
 degenerative   
 deglutition   
 dehydration   
 delivery   
 \*demineralization   
 densities   
 density   
 dental   
 dentist   
 dentition   
 deposit   
 depressed   
 depression   
 depressions   
 dermatitis   
 descending   
 descending colon   
 developmental   
 deviation 



diagnosis		distortion	
diagnoses		doctor	
diameter		* Doderlein's bacillus	
diaphragm		* dolichocephalic	
* diaphragmatic		dorsal	
* diaphragms		* dorsolumbar	
* dichromate		* dorsum sellae	
Dick test		drums	
differential		duct	
diffuse		* ductus Botalli	
digestive		duodenum	
dilatation		dura	
dilation		* dysmenorrhea	
* diploe		dystrophy	
disc		<u>E</u>	
dises		eczema	
discharge		edema	
disease		effusion	
diseases		emphysema	
dislocation		emphysematous	
dispensary		enemas	
displacement		engorged	
distal		ensiform	
distention		eosinophils	


















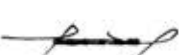





























* epicondyle	<u>ea</u>	feces	<u>f</u>
epididymis	<u>ve</u>	female	<u>b</u>
epidural	<u>ru</u>	femur	<u>u</u>
epiphyseal	<u>f</u>	fever	<u>f</u>
epiphysis	<u>f</u>	fibers	<u>f</u>
epithelial	<u>le</u>	fibrosis	<u>f</u>
erosion	<u>ex</u>	fibrotic	<u>f</u>
erratic	<u>o</u>	fibrous	<u>f</u>
erysipelas	<u>ep</u>	field	<u>u</u>
etiology	<u>le</u>	fields	<u>u</u>
exostosis	<u>u</u>	filling	<u>u</u>
extension	<u>v</u>	fillings	<u>u</u>
external	<u>v</u>	findings	<u>u</u>
extractions	<u>3</u>	fissure	<u>f</u>
extremities	<u>3</u>	fissures	<u>f</u>
exudate	<u>u</u>	fixation	<u>f</u>
* exudations	<u>u</u>	flexion	<u>le</u>
* eyegrounds	<u>u</u>	flows	<u>u</u>
<u>F</u>		fluctuating	<u>u</u>
facial	<u>e</u>	fluid	<u>u</u>
facies	<u>f</u>	focal	<u>u</u>
falx	<u>u</u>	fool	<u>f</u>
family	<u>u</u>	focus	<u>u</u>
fat	<u>u</u>	folds	<u>u</u>














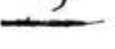










fontanel fr  
 foramen fo  
 \* foramen Botalli fo bo  
 \* foramen magnum fo ma  
 \* foramen ovale fo o  
 forceps f  
 formalin fo  
 formation fo  
 fracture fr  
 fractures fr  
 \* fragmentation fr  
 frontal fr  
 functional f  
G  
 \* galea aponeurotica ga  
 \* ganglia ga  
 gelatinous ge  
 general ge  
 gingivitis gi  
 glandular gl  
 gonadal go  
 gonococcus go  
 gonorrhea go  
 gram gr





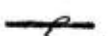

















grams gr  
 Gram's stain gr  
 granular gr  
 granuloma gr  
 \* gross gr  
 \* growth gr  
 \* gynecological gy  
 gyri gy  
H  
 \* haustral ha  
 healing he  
 health he  
 \* helix he  
 hemiplegia he  
 hemisphere he  
 hemispheres he  
 hemoglobin he  
 hemorrhage he  
 hemorrhages he  
 hemorrhagic he  
 hepatitis he  
 \* hepatization he  
 hernia he  
 \* herniation he

* hilar	<u>hilar</u>	imbecile	<u>imbecile</u>
hilum	<u>hilum</u>	immediate	<u>immediate</u>
hilus	<u>hilus</u>	immunization	<u>immunization</u>
* Hinton test	<u>Hinton test</u>	impacted	<u>impacted</u>
* histoplasmosis	<u>histoplasmosis</u>	impaction	<u>impaction</u>
* homatropine	<u>homatropine</u>	* impregnates	<u>impregnates</u>
homogeneous	<u>homogeneous</u>	incision	<u>incision</u>
hospital	<u>hospital</u>	incisions	<u>incisions</u>
humerus	<u>humerus</u>	incisor	<u>incisor</u>
hydrocephaly	<u>hydrocephaly</u>	incisors	<u>incisors</u>
hyperemia	<u>hyperemia</u>	indication	<u>indication</u>
* hyperopic	<u>hyperopic</u>	* indurated	<u>indurated</u>
hypertrophic	<u>hypertrophic</u>	induration	<u>induration</u>
hypertrophy	<u>hypertrophy</u>	infantile	<u>infantile</u>
* hypogonadism	<u>hypogonadism</u>	* infarct	<u>infarct</u>
hypoplasia	<u>hypoplasia</u>	infection	<u>infection</u>
hypostatic	<u>hypostatic</u>	* infectious	<u>infectious</u>
<u>I</u>		inferior	<u>inferior</u>
idiocy	<u>idiocy</u>	infestation	<u>infestation</u>
idiot	<u>idiot</u>	infiltration	<u>infiltration</u>
* ileus	<u>ileus</u>	infirmary	<u>infirmary</u>
iliac	<u>iliac</u>	infirmity	<u>infirmity</u>
ilium	<u>ilium</u>	inflammatory	<u>inflammatory</u>
ill	<u>ill</u>	infraclavicular	<u>infraclavicular</u>

injected		kyphosis	
injury		<u>L</u>	
inoculation		labor	
inspection		laboratory	
intercostal		* lambdoid	
intercurrent		lamina	
internal		* laryngologist	
interspace		lateral	
interstitial		lead	
interventricular		lenses	
intestinal		* leptomeninges	
* intrasellar		leptomeningitis	
* intraventricular		lesion	
iodine		lesions	
iris		leukoocytes	
irises		leukorrhea	
irregular		lice	
ischium		linear	
<u>J</u>		lipoids	
jaundice		lipomatosis	
junction		liquid	
jerks		* lividity	
<u>K</u>		lobar	
kyphoscoliosis		lobe	

lobes		maternity	
lobules		maxillary	
localized		measles	
loop		meatus	
* lordotic		mechanical	
lumbar		media	
lumen		* medial	
lymphs		median	
<u>M</u>		mediastinum	
major labia		medulla	
male		medullary	
malformation		* membrana	
malleolus		membrane	
mammillary		meningeal	
mandible		meninges	
manic-depressive		* meningioma	
margin		meningitis	
marginal		menorrhagia	
* marrow		mental	
* masses		mercurochrome	
* masseter		mesentery	
mastoid		* mesocolon	
mastoiditis		metacarpal	
maternal		metastatic	

metatarsus   
 method   
 \* metorrhagic   
 \* microcephalic   
 microcephaly   
 \* microgyria   
 microscopic   
 \* midwife   
 miliary   
 minimal   
 minor labia   
 miscarriage   
 miscarriages   
 mitral   
 \* molar   
 \* molars   
 \* mongolism   
 mongoloid   
 moron   
 \* mottling   
 movements   
 mucoid   
 mucopurulent   
 mucosa 

mucous   
 mureurs   
 musculature   
 mite   
 N  
 nasal   
 necrosis   
 necrotic   
 negative   
 nephritis   
 nerve   
 nervous   
 nits   
 node   
 nodes   
 nodule   
 nodules   
 normal   
 \* notch   
 \* nutritional   
 O  
 obese   
 \* obesitas   
 obesity 

oblique	<u>oblique</u>	otitis media	<u>otitis media</u>
obliteration	<u>obliteration</u>	outpatient	<u>outpatient</u>
obstruction	<u>obstruction</u>	ovaries	<u>ovaries</u>
obtuse	<u>obtuse</u>	<u>P</u>	
occipital	<u>occipital</u>	pachymeningitis	<u>pachymeningitis</u>
occlusion	<u>occlusion</u>	palpebral	<u>palpebral</u>
oculist	<u>oculist</u>	pancreas	<u>pancreas</u>
olfactory	<u>olfactory</u>	papular	<u>papular</u>
omentum	<u>omentum</u>	* paracardiac	<u>* paracardiac</u>
optic	<u>optic</u>	paralysis	<u>paralysis</u>
orbit	<u>orbit</u>	paralytic	<u>paralytic</u>
orbital	<u>orbital</u>	paraplegia	<u>paraplegia</u>
organ	<u>organ</u>	parathyroid	<u>parathyroid</u>
organs	<u>organs</u>	parenchyma	<u>parenchyma</u>
organic	<u>organic</u>	* parenchymal	<u>* parenchymal</u>
organism	<u>organism</u>	parietal	<u>parietal</u>
organisms	<u>organisms</u>	* parieto-occipital	<u>* parieto-occipital</u>
origin	<u>origin</u>	* patellae	<u>* patellae</u>
orthopedic	<u>orthopedic</u>	patellar	<u>patellar</u>
osseous	<u>osseous</u>	patent	<u>patent</u>
ossification	<u>ossification</u>	* pathologist	<u>* pathologist</u>
osteomalacia	<u>osteomalacia</u>	pathology	<u>pathology</u>
osteomyelitis	<u>osteomyelitis</u>	patient	<u>patient</u>
* osteoporosis	<u>* osteoporosis</u>	pattern	<u>pattern</u>



patterns	<u>h</u>	perversions	<u>h</u>
pectoral	<u>h</u>	pervert	<u>h</u>
pedicles	<u>h</u>	phalangeal	<u>h</u>
* pediculi	<u>h</u>	phalanges	<u>h</u>
* pediculosis capitis	<u>h</u>	phalanx	<u>h</u>
pelvic	<u>h</u>	pharynx	<u>h</u>
pelvis	<u>h</u>	phase	<u>h</u>
penis	<u>h</u>	* phenylpyruvic	<u>h</u>
periapical	<u>h</u>	physical	<u>h</u>
* peribronchial	<u>h</u>	pia arachnoid	<u>h</u>
pericardial	<u>h</u>	pigmentation	<u>h</u>
pericarditis	<u>h</u>	pituitary	<u>h</u>
pericardium	<u>h</u>	plaques	<u>h</u>
perihepatitis	<u>h</u>	platelets	<u>h</u>
perimetritis	<u>h</u>	pleura	<u>h</u>
* perimetrium	<u>h</u>	pleural	<u>h</u>
period	<u>h</u>	pleurisy	<u>h</u>
periods	<u>h</u>	plica	<u>h</u>
periostitis	<u>h</u>	pneumonia	<u>h</u>
peripheral	<u>h</u>	* pneumonic	<u>h</u>
periphery	<u>h</u>	* pneumonitis	<u>h</u>
peritoneal	<u>h</u>	poisoning	<u>h</u>
peritoneum	<u>h</u>	poles	<u>h</u>
peritonitis	<u>h</u>	polymorphonuclear	<u>h</u>

pons	<u>ls</u>	pulmonary	<u>ls</u>
* porencephaly	<u>ls</u>	* pulpa	<u>ls</u>
positive	<u>ls</u>	pylorus	<u>ls</u>
posterior	<u>ls</u>	pyogenic	<u>ls</u>
postmortem	<u>ls</u>	* pyriform	<u>ls</u>
* postnatal	<u>ls</u>	<u>R</u>	
* precentral	<u>ls</u>	radius	<u>ls</u>
pregnancies	<u>ls</u>	rape	<u>ls</u>
pregnancy	<u>ls</u>	reaction	<u>ls</u>
pregnant	<u>ls</u>	rectum	<u>ls</u>
* premature	<u>ls</u>	reduction	<u>ls</u>
* premolars	<u>ls</u>	reflexes	<u>ls</u>
* prepuberty	<u>ls</u>	refraction	<u>ls</u>
presentation	<u>ls</u>	refractive	<u>ls</u>
pressure	<u>ls</u>	region	<u>ls</u>
primary	<u>ls</u>	regions	<u>ls</u>
process	<u>ls</u>	* regression	<u>ls</u>
processes	<u>ls</u>	regular	<u>ls</u>
* prognathism	<u>ls</u>	residual	<u>ls</u>
prominence	<u>ls</u>	residuals	<u>ls</u>
psychopathic	<u>ls</u>	residue	<u>ls</u>
psychosis	<u>ls</u>	resolution	<u>ls</u>
pubic	<u>ls</u>	respiratory	<u>ls</u>
pulmonaries	<u>ls</u>	restoration	<u>ls</u>

retardation	<u>ret</u>	scars	<u>sc</u>
retinal	<u>ret</u>	Schick test	<u>sch</u>
* retrocecal	<u>ret</u>	sclerosis	<u>sc</u>
rheumatic	<u>rh</u>	sclerotic	<u>sc</u>
rickets	<u>rick</u>	scoliosis	<u>sc</u>
rigidity	<u>rig</u>	scrotum	<u>sc</u>
rigor mortis	<u>rig</u>	secretion	<u>sec</u>
1		section	<u>sec</u>
roof	<u>ro</u>	sections	<u>sec</u>
roofs	<u>ro</u>	segment	<u>seg</u>
root	<u>ro</u>	segments	<u>seg</u>
rudimentary	<u>rud</u>	sella	<u>se</u>
ruptures	<u>rup</u>	sella turcica	<u>se</u>
<u>s</u>		septum	<u>se</u>
sac	<u>sac</u>	serous	<u>se</u>
sacral	<u>sac</u>	sex	<u>se</u>
sacro-iliac	<u>sac</u>	shadow	<u>sh</u>
sagittal	<u>sag</u>	shadows	<u>sh</u>
scabies	<u>scab</u>	shaft	<u>sh</u>
scaphoid	<u>scap</u>	* siblings	<u>si</u>
scapula	<u>scap</u>	sigmoid	<u>sig</u>
* scapulae	<u>scap</u>	simple	<u>si</u>
2			
scar	<u>scar</u>		
























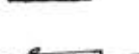

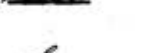

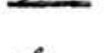





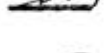







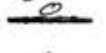

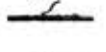


1 Cross-reference is to tegmen in the AMERICAN MEDICAL DICTIONARY.

2 Refer to the technical term for scar—cicatrix.

sinus	<u>st</u>	staining	<u>st</u>
sinuses	<u>st</u>	status	<u>st</u>
skeletal	<u>sk</u>	sternal	<u>st</u>
solution	<u>sl</u>	sternum	<u>st</u>
space	<u>sp</u>	stigmata	<u>st</u>
spasm	<u>sp</u>	* stillborn	<u>st</u>
spastic	<u>sp</u>	strabismus	<u>st</u>
specific	<u>sp</u>	subarachnoid	<u>st</u>
specific gravity	<u>sp</u>	subcutaneous	<u>st</u>
specimen	<u>sp</u>	subluxation	<u>st</u>
speculum	<u>sp</u>	subnormal	<u>st</u>
spina bifida	<u>sp</u>	substance	<u>st</u>
spinal	<u>sp</u>	sugar <sup>1</sup>	<u>st</u>
spinal canal	<u>sp</u>	sunburn	<u>st</u>
spinal cord	<u>sp</u>	superior	<u>st</u>
* splanchnomy	<u>sp</u>	* supinators	<u>st</u>
spleen	<u>sp</u>	supraclavicular	<u>st</u>
spur	<u>sp</u>	surface	<u>st</u>
spurs	<u>sp</u>	surfaces	<u>st</u>
sputum	<u>sp</u>	surgical	<u>st</u>
* squama	<u>sq</u>	suture	<u>st</u>
squamous	<u>sq</u>	sutures <sup>2</sup>	<u>st</u>
squint	<u>sq</u>	swallowing	<u>st</u>
stain	<u>st</u>	swelling	<u>st</u>

<sup>1</sup>  
Refer to dermatitis.

<sup>2</sup>  
Refer to deglutition.

* Sylvian fissure		thyroid	
symmetrical		* thyroidal	
symphysis		tibia	
symptoms		tissue	
* syndactyly		tissues	
syphilis		tone	
systolic		tonsillitis	
T		tonsils	
table		trachea	
table <sup>1</sup>		tragus	
tables		transitionals	
temporal		translucent	
tenderness		transposition	
terminal		transverse	
test		transverse colon	
tests		* transversum	
testicle		treatment	
testicles		tremor	
thenar		tricuspid	
thoracic		trochanter	
thorax		trophic	
* thrombi		tube	
thrombosis		tubercular	
thymus			

1

Refer to lamina.

tuberculin patch test	<u>tpc</u>	V	
* tuberculoma	<u>to</u>	vaccination	<u>va</u>
tuberculosis	<u>to</u>	valgus	<u>va</u>
tuberculous	<u>to</u>	valve	<u>va</u>
tubes	<u>to</u>	valves	<u>va</u>
tumor	<u>to</u>	vascular	<u>va</u>
twin	<u>to</u>	vegetations	<u>va</u>
* tympani	<u>to</u>	<sup>1</sup>	
tympanitic	<u>to</u>	* veins	<u>va</u>
typhoid	<u>to</u>	ventricle	<u>va</u>
<u>U</u>		* ventricles	<u>va</u>
ulceration	<u>up</u>	ventricular	<u>va</u>
ulcers	<u>up</u>	vertebrae	<u>va</u>
ulna	<u>up</u>	vertebral	<u>va</u>
umbilical	<u>up</u>	vessel	<u>va</u>
umbilicus	<u>up</u>	vessels	<u>va</u>
unconscious	<u>up</u>	virus	<u>va</u>
union	<u>up</u>	viscera	<u>va</u>
urethra	<u>up</u>	vision	<u>va</u>
urinalysis	<u>up</u>	visual	<u>va</u>
urine	<u>up</u>	volvulus	<u>va</u>
uterus	<u>up</u>	wall	<u>va</u>
		Wassermann	<u>va</u>

The only outline given for vein is va for phrasing in the GREGG MEDICAL SHORTHAND MANUAL.

weight	<u>2</u>
whooping cough	<u>6</u>
x-ray	<u>20</u>
x-rays	<u>20</u>
zone	<u>5</u>
* zygomatic	<u>20</u>

## CHAPTER V

## SUMMARY AND CONCLUSIONS

This count of 32,419 running words yielded 828 different medical terms. The great number of terms appearing for so limited a count would indicate the usefulness of a more extensive count. A suggestion would be to list the common words, such as acid, air, area, base, fat, and the like, separately without count, and to restrict further count to more difficult and less familiar terms in a continuation of this investigation or the initiation of a new count. Abstract material, particularly, gave a plethora of familiar terms; and since the Gregg publishers have mentioned the value of a frequency count of terms found in case histories (as well as in autopsies), such an undertaking would be in order.<sup>1</sup> In any case, List IV presents to one contemplating such a study a picture of the terminology he may expect to find in autopsy dictation.

A more extensive count would certainly change the rank of many of the words here appearing with a frequency of one or two. Another investigator might disagree with the arbitrary inclusion of plurals not appearing in the AMERICAN MEDICAL DICTIONARY, as well as with the inclusion of verbs in the third person singular, present tense; he might also choose to include derivative forms of distinctly medical terms which do not appear in the source. Frequency count of medical phrases would be valuable.

These lists are meant to be studied by high school business students

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<sup>1</sup>  
See page 13 of this study.



expecting to be employed at this institution. They are helpful, too, for the stenographers already employed. In presenting the lists for study, emphasis must be placed upon spelling, pronunciation, and shorthand outlines with some initiation into meanings. Here the people with experience<sup>1</sup> in this type of dictation are at an advantage since Leslie tells us: "...it is necessary to know something of the field itself in order to have enough background to assimilate the vocabulary."

Business course students need practice in forming the singular or plural of terms of Latin or Greek derivation. It is recommended that the following list be studied for this purpose. The words are taken from List VII.

<u>Singular</u>	<u>Plural</u>
appendix	appendices, appendixes
arthritis	arthritides
axilla	axillae
axis	axes
bacillus	bacilli
bacterium	bacteria
base	bases
basis	bases
bronchiolus	bronchioli
bronchus	bronchi
cicatrix	cicatrices

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<sup>1</sup>  
See page 23 of this study.

cornea	corneae
diagnosis	diagnoses
exostosis	exostoses
facies	facies
focus	foci
foramen	foramina
ganglion	ganglia, ganglions
gonococcus	gonococci
hilum	hila
hilus	hili
labium	labia
lumen	lumina
medium	media, mediums
membrana	membranae
patella	patellae
pediculus	pediculi
phalanx	phalanges
psychosis	psychoses
pulpa	pulpae
radius	radii
scapula	scapulae
sella	sellae
squama	squamae
thrombus	thrombi
tympanum	tympana

uterus

uteri

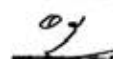

vertebra



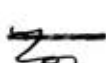
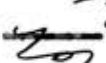
vertebrae



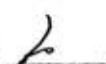

viscus

viscera

There was some discrepancy between the LaViola study and Smither's MEDICAL SHORTHAND MANUAL on some outlines. Examples are as follows:

LaViolaSmither

Also, LaViola gives  for , which may be a typographical error; and  for .

Spina bifida is an example of differences in pronunciation. Changes may be made in the forms given in list seven to correspond with differing pronunciations in use at the school; e. g.  may be written , and , . There also was discrepancy in the use of the "h" dot in the two sources. For the sake of brevity, this could probably be omitted in all the terms beginning with "h" in List VII.

Misspellings indicated trouble with medical homonyms--even with course and coarse because of lack of understanding of content. This agrees with

1

the statement of Leslie that: "to the extent that such useless memorization succeeds, it is likely to be more harmful than useful, leading to such difficulties as the mucous-mucus error..." Distinction must be made between each of the following homonyms:

albumen	albumin
buccal	buckle
callous	callus
mucous	mucus

The following similar words also seemed to give trouble:

hilum	hilus
ileum	ilium
ileum	ileus

For the experienced stenographers, the following phrase short-cuts are excerpted from Smither.<sup>2</sup>

abscess: *l*

acute abscess *l*

angle: *a*

of refraction *ay*

artery: *a*

abdominal *l*

bacillus: *b*

tuberculosis bacillus *l*

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<sup>1</sup> See page 21 of this study.

<sup>2</sup> Smither, op. cit., p. 12-21.

bacterium, a: *L*

pathogenic bacteria *L L*

canal: *—*

cerebrospinal canal *et*

cell: */*

red blood cell *7 2*

white blood cell *7 2*

cord: *✓*

spinal cord *✓*

corpuscle: *2*

red blood corpuscle *2 2*

white blood corpuscle *2 2*

cyst: *✓*

epithelial cyst *6 2*

disease: *✓*

acute disease *2*

duct: *✓*

bile duct *6*

fever: */*

rheumatic fever *2 9*

gland: *—*

axillary gland *2 2*

membrane: *2*

mucous membrane *2*

murmur: *—*

cardiac murmur *2*

muscle: →

zygomatic muscle →

nerve: ↗

nerve center ↗

reflex: 2

Babinski's reflex ↗ 2

tumor: -

abdominal tumor ↗

valve: ↗

aortic valve ↗

vein: ↗

afferent vein ↗

ventricle: ↗

fifth ventricle ↗ ↗

LaViola offers additional useful phrases for the experienced stenographer. Several of these are used in List VII.

blood count ↗

blood pressure ↗

Colles' fracture ↗

gall bladder ↗

shoulder blades ↗

spinal canal ↗

spinal column ↗

"Negative" appears shortened to neg in phrases, and "gram" to

gram.

The following phrases, which occurred frequently in this study but were not counted, receive special phrases in the LaViola study also:

blood vessel	<u>CV</u>
chip fracture	<u>h</u>
comminuted fracture	<u>st</u>
compound fracture	<u>g</u>
oblique fracture	<u>g</u>
occipital region	<u>g</u>
right index finger	<u>g</u>

Assimilation of meanings can come only with repeated study of common  
1  
prefixes and suffixes. Smither mentions this:

...Greek and Latin prefixes and suffixes have a real and definite meaning...The secretary who makes himself familiar with their spelling and meaning will not be able to calculate their help in comprehending new words.

2

Markwick tells us:

The medical stenographer needs to be a specialist. She should come to even her first position with a knowledge of the prefixes and suffixes in medical words and with a strong foundation in medical terminology. She should know the mechanical structure of the various forms and reports in common use.

With this latter statement in mind, examples of the three forms investigated in this study are included in Appendix B. They serve an additional purpose by presenting actual content in which many of the medical terms of this study appear.

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Smither, op. cit., p. 6.

2

Markwick, et al., p. 62.

The need for complete accuracy and for strengthening one's medical vocabulary must be brought home to stenographers and students. Smither<sup>1</sup> has mentioned the need for absolute accuracy.

Nowhere is absolute accuracy more a necessity, and nowhere else will the verbatim recording be more difficult...No matter how much the secretary may come to understand the content, he dare not trust his "knowledge of content" in transcribing.

Markwick says:<sup>2</sup> However good the beginning stenographer's technical vocabulary may be, she will find she has constant need to expand it."

Because CLINICAL DIAGNOSES must be worded exactly in the abstracts, a supplementary list of these is added to Appendix B. It contains all diagnoses in this institution, and would be valuable for spelling. (Appendix B, 4.)

Markwick suggests references for the medical secretary or stenographer:

1. An adequate English dictionary.
2. A shorthand dictionary.
3. A medical dictionary.
4. A secretary's manual on English usage.
5. 20,000 WORDS by Leslie, published by Gregg.

An additional suggestion would be the GREGG MEDICAL SHORTHAND MANUAL for its wealth of useful information.

For one interested in investigating the field of medical secretarial

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<sup>1</sup> Smither, op. cit., p. iii.

<sup>2</sup> Markwick et al., p. 62.



or stenographic work, Markwick has published a series of articles in the BUSINESS EDUCATION WORLD. The one for the month of April gives the kinds of positions available, compensation and hours, advantages and disadvantages.<sup>1</sup>

In closing it is advisable to touch upon a point hitherto not mentioned. It would be well to know the traits most desired by physicians in their secretaries, and worth cultivation by one aspiring to such a position.<sup>2</sup> In order, they are:

1. Intelligence--ability to think through a problem.
2. Intelligent adaptability.
3. Keeping office business confidential.
4. Tact and discretion.
5. Neatness.
6. Ability to relieve the doctor's mind of the business end of his practice.
7. Training in making collections without antagonizing patients.
8. Strict accuracy in typing and in working at figures.
9. Thorough knowledge of English construction and spelling so that hastily dictated notes may be corrected.
10. Regard for work as a career and not as a job.

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<sup>1</sup> Evangeline Markwick. "Survey of the Occupation of Medical Secretary" BUSINESS EDUCATION WORLD, April, 1940, Volume 20, p. 675-678.

<sup>2</sup> "Survey of the Occupation of Medical Secretary, BUSINESS EDUCATION WORLD, March, 1940, Volume 20, p. 615-617.

**APPENDIX A**

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**APPENDIX B**

## SAMPLE ABSTRACT

HISTORY PREVIOUS TO ADMISSION:

## FAMILY HISTORY:

Father:-----, born in -----, age 45, living and well.  
Family history is negative.

Mother:-----, born in -----, age 44, living and well.  
Family history is negative. Mother had one miscarriage.

Siblings: Two sisters, ages 12 and 11. Both are living and well.  
One brother died at the age of nine in an accident.

## HOME CONDITIONS:

There is no statement as to home conditions.

PERSONAL HISTORY:

----- was born in -----, on October 22, ----. Birth was premature, being born at seven months. He weighed only four pounds at birth. He was cyanotic when born. He was breast-fed for two months. He has never been strong, vomited considerably, slept very poorly; his appetite was poor. He teethed at eight months. He was unable to sit up until the latter part of his first year; he has not learned to walk. He did not begin to talk until two years and can say only a few monosyllabic words. It is hard to understand his speech. He has not acquired control of the bladder or the bowels. He has not learned to dress or feed himself. Peculiarity was noticed at the time of birth. Child never seemed to be normal. He has had none of the usual diseases of childhood. He has never attended school. (Age: three years and nine months.) In June, ----, the parents brought this child to the Children's Hospital. At that time they were desirous of finding some place to put ---- as they had no friends and a new baby was expected in a month or so. Diagnosis made at that time was "Spastic Paraplegia," and they advised the parents to have the baby placed at the Wrentham State School. The Social Service Department contacted Dr. Raymond relative to this case and explained the situation, and he forwarded a descriptive application to them for this boy's admission. At that time he stated that it would be well to encourage the parents to take this boy home after the new baby was old enough so as not to require too much of the mother's attention. He was brought to the school on July --, ----, on a voluntary school commitment.

HISTORY SINCE ADMISSION:

He was brought to the school by his father. He is a little three-



year-old boy afflicted with spastic paralysis. He is able to stand with support and appears to have a fair use of his hands in reaching for things. At his first presentation at Staff Meeting, a diagnosis of congenital cerebral spastic infantile paralysis was made, and note was made that the expectancy of life was short.

While here, his general health has been good. He is a very untidy child, who requires the care of an infant. It has been noticed that he has considerable difficulty in swallowing, which makes feeding difficult, requiring much time. He had been here a little over a month when his parents called and stated that the urgency at home had been cleared up, and they would like to take ---- back with them. In view of the fact that ---- is a little three-year-old spastic boy who is confined to his bed and needs much care, it was felt that he could be just as adequately cared for at home as here at the school. Permission was granted the mother to take the child on an indefinite visit with the understanding that if he remained one year, he would be automatically discharged from our school.

#### PHYSICAL EXAMINATION:

A three-year-old boy weighing 30 lbs., 35 $\frac{1}{2}$  inches tall. Somewhat undernourished; underdeveloped. Hair light-colored. Eyes gray. All four extremities show spastic paralysis. Musculature: poor tone and flabby. There was a papular eczema on back and abdomen. Occipital region of the skull, flat. Ears, dissimilar. Teeth in very poor condition with poor occlusion. All reflexes were increased. He is unable to sit up, stand, or walk.

MENTAL AGE: Chronological Age 3 9/12 years; Mental Age: 2 years;  
I. Q. .53.

Psychological classification: Moron. He paid good attention, made good effort, very alert and interested. Comprehended directions fairly well and made some effort to name the objects. He tried to do the simple imitation exercises and obey the commands of the ball. Unable to copy the circle. His speech was brief and consisted mostly of phrases as, "My mother," and "I can't." Every time he made an effort to direct his muscles to do something, the spasticity of the fingers would increase, and he was unable to complete the task.

#### DENTAL EXAMINATION:

Teeth clean. Seven cavities. Five extractions necessary. Mucous membrane normal. Poor occlusion. Abnormal maxillary relations. Marked protrusion of the upper anterior teeth.

HINTON TEST: Negative

(No other laboratory tests were made as he left the school on visit before they could be done.)



TYPHOID INOCULATION: Completed on -----.

EXAMINATION BY LARYNGOLOGIST: November 10, ----. Chronic tonsillitis.

VACCINATION: November 15, ----. Positive.

DICK TEST: November 25, ----. Negative.

EXAMINATION BY OCULIST: November 10, ----. No apparent refractive error.

SCHICK TEST: Negative.

TUBERCULIN PATCH TEST: Positive.

## SAMPLE AUTOPSY REPORT

NAME \_\_\_\_\_

Chronological Age: 4 11/12

Mental Age: 3 months

Intelligence Quotient: .05

Clinical Diagnosis: With other organic nervous diseases (type undetermined)  
Idiot

Date of Death: \_\_\_\_\_

Date of Autopsy: \_\_\_\_\_

Autopsy performed by Dr. \_\_\_\_\_, assisted by Miss \_\_\_\_\_.  
Permission for autopsy given by parents.

GENERAL CONDITION:

The body is that of a white boy said to be 4 11/12 years of age. The head is rather large, of dolichocephalic shape with strong blond hair. The ears are large, outstanding, and simple. The forehead is rather high and protruding, suggesting some hydrocephalus. The eyelashes are very long. The nose and mouth are formed normally. The body is very emaciated; arms and legs are atrophic and match-like.

The body is opened with a one-line incision.

HEAD:

Immediately after opening the skull, some spinal fluid was pouring out from the cavity. The brain did not fill the calvarium, and there is a definite space between dura and calvarium.

Brain:

The brain weighs 1,000 grams. It is very soft, and there is a

considerable amount of fluid around it. On a coronal section, the lateral ventricles appear very much enlarged and the caudate nucleus somewhat atrophic. The dura is thickened, and the sagittal sinus appears especially rough and uneven. The cerebral vessels are congested.

#### Pituitary:

The pituitary is rather small. It is preserved in Bouin's.

#### THORACIC CAVITY:

The lungs are of grayish-pink color. The left lung is not adherent and only the posterior surface is somewhat congested. The right lung reveals some adhesions between the posterior wall and the pleura. The lung weighs 100 grams. The upper lobe is free from pathology. A small area in the middle lobe shows induration and some gray nodules, indicating bronchopneumonia.

#### Heart:

The heart appears small, weighing 50 grams (normal, 85 grams). The right ventricle is relaxed and the left ventricle is in systole. The tricuspid and mitral valves are essentially negative.

#### ABDOMINAL CAVITY:

The kidneys are small and underdeveloped. Weight of one kidney is 34 grams (normal, 65 grams).

#### Liver:

The liver is extremely small, weighing 250 grams (normal, 596 grams). There is evidence of fibrosis all through.

#### CAUSE OF DEATH:

Status epilepticus due to hydrocephalus internus

Idiocy

ANATOMICAL DIAGNOSES:

Hydrocephalus

Liver aplasia

Splanchnomieria

## SAMPLE X-RAY REPORT

X-RAY PLATES READ NOVEMBER 3, 1947

Name	Number	Right Knee	8x12	Taken 10/27/47
		Chest	14x17	Inf.

Examination of the right knee shows no abnormalities of the joint. The appearance of the knee has not changed over the interval of five years except for the development growth.

Re-examination of the chest continues to be essentially negative. Perihilar shadows are slightly increased, but there is no evidence of any tuberculosis.

Name	Number	Chest	14x17	Taken 10/30/47
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Examination of the chest shows the lungs to be clear with no evidence of infection. Heart and mediastinum are not enlarged.

Name	Number	Chest	14x17	Taken 10/27/47
				B Bldg.

Re-examination of the chest continues to show rather dense infiltration in both apices. Cavities previously described in left apex cannot be clearly demonstrated at this time. Changes are rather dense and suggest that disease may be going into the healing phase.

Name	Number	Right Big Toe	5x7	Taken 10/27/47
				C Bldg.

Re-examination of the right big toe shows the previous fracture to be in good position with evidence of some healing and filling in at the fracture line. Bone union is not established as yet.

Name	Number	Right Ankle	8x10	Taken 10/27/47
				O Bldg.

Examination of the right ankle shows a fracture at the tip of the external malleolus in good position.

Name	Number	Right Hand	8x10	Taken 10/27/47
				K Bldg.

Examination of the right hand shows a fracture through the distal shaft of the 5th metacarpal with minimal angulation and hardly any deformity.

Name                      Number    Right Index Finger    5x7                      Taken 10/27/47  
Emp.

Examination of the right index finger shows no fracture, dislocation, nor epiphyseal displacement.

Name                      Number                      Chest                      14x17                      Taken 10/28/47  
and 10/30/47--Emp.

Examination of the chest shows a few linear densities extending up to the right infraclavicular region rather sharply defined and probably representing an extension of the broncho-vascular tree. In the extreme right apex there is also a density which does not have the appearance of tuberculosis. Rest of the chest is essentially negative. Might be well to re-check this chest in about two months.

Name                      Number                      Right Tibia                      8x10                      Taken 10/28/47  
Emp.

Examination of the right tibia shows no fracture.

Name                      Number                      Right Hand                      8x10                      Taken 10/29/47  
K Bldg.

Examination of the right hand shows no fracture or dislocation.

Name                      Number                      Chest                      14x17                      Taken 10/30/47  
Emp.

Examination of the chest shows prominence of the heart size. The heart is not unusually large. There is no prominence in the region of the left auricle but this does not rule out left auricular enlargement. The chest is essentially negative.

Name                      Number                      Left Shoulder                      10x12                      Taken 10/30/47  
A Bldg.

Examination of the left shoulder shows no separation of the acromioclavicular joint and no bone changes.

Name                      Number                      Right Ankle                      8x10                      Taken 10/30/47  
Emp.

Examination of the right ankle is negative.

Name                      Number                      Right Ankle                      8x10                      Taken 10/30/47  
Emp.

Examination of the right ankle is negative.

Name	Number	Right Hand	5x7	Taken 10/30/47 Emp.
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Examination of the 5th finger and 5th metacarpal is negative.

Name	Number	Lumbar Spine	10x12	Taken 11/3/47
		Pelvis	14x17	Emp.

Examination of the lumbar spine and pelvis shows no fracture or bone injury.

Name	Number	Chest	14x17	Taken 11/3/47 A Bldg.
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Re-examination of the chest continues to show the linear densities in the right base about the same as present in April, 1946. Costo-phrenic angle is blunted. This represents an old infection or some chronic process.

Name	Number	Right Thumb	5x7	Taken 11/3/47 Emp.
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Examination of the right thumb shows no fracture.

Name	Number	Chest	14x17	Taken 11/3/47 Sp. Hosp.
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Examination of the chest shows extensive involvement of the entire lung fields on both sides, with cavitation in the right infraclavicular region. X-rays are showing definite progress.

## CLINICAL DIAGNOSES

### Familial

### Mongolism

With developmental cranial anomalies--hydrocephaly, microcephaly, oxycephaly, etc. (Also spinal dysraphism, leontiasis ossia.)

With congenital cerebral spastic infantile paralysis

Post-infectional--epidemic encephalitis, encephalitis of other types, meningococcus meningitis, congenital syphilis.

Post-traumatic-natal-neurological or non-neurological

Brain damage only; occurrence of damage to brain during birth, differentiated from congenital paralysis, skull fracture, and severe concussions in infancy or early childhood.

With epilepsy--symptomatic--primary condition when mental defect is due to epileptic deterioration.

With epilepsy--ideopathic

With endocrine disorders--with cretinism, hypothyroidism, pituitary dystrophy, polyglandular disturbances, etc.

With familial amaurosis--progressive blindness, muscular weakness and mental deterioration between age of few months to ten years.

With tuberous sclerosis--retrograde mental defect from birth--epileptiform attacks often from first year, adenoma sebaceus symmetrical at nose labial fold at 4th to 5th year.

With other organic nervous disease--lenticular nucleus, post-traumatic cyst, muscular dystrophy, type undetermined.

### Undifferentiated

Other forms: psychosis, etc.