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## 5. Rudolf Berlin: Originator of the Term Dyslexia

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Most people know that America was given her name in honor of the Italian explorer Amerigo Vespucci, but few may know that the word was first used by the German cartographer Martin Waltzenmueller when making a new globe in Strassburg. In the same way, many professional workers are familiar with the term dyslexia but may not know that it was coined by Professor Dr. Rudolf Berlin. They may have read that it is a combination of the Greek "dys-" meaning faulty or impaired, and "lexis" meaning speech, from the Greek "legein," to speak (Merriam-Webster, 1934 edition). Several authors on dyslexia, among them Rawson (1968), Thompson (1966) and Wagner (1971) have mentioned the etymology of dyslexia. Critchley (1970, p. 2) mentions that "The word 'dyslexia' was first suggested by Professor Berlin in Stuttgart in 1887 in his monograph *Eine besondere Art der Wortblindheit (Dyslexie)*." While this writer is impressed with the current experimental research regarding dyslexia in children and adults, he could not help indulging in a side-excision of historical research so that due tribute can be paid to the man, Rudolf Berlin, who named the ship even though he never became her captain.

### BIBLIOGRAPHICAL BACKGROUND<sup>1</sup>

Brief biographical entries on Professor Dr. Rudolf Berlin were found in four different sources, all written in German and published in Germany (*Allgemeine deutsche Biographie* 1902; Bettelheim 1898; Wilhelmi 1901; and *Handbuch der gesamten Augenheilkunde* 1918). Rudolf Berlin was born on May 2, 1833, in Friedland in Mecklenburg, now part of East Germany. He studied medicine at Göttingen, Würzburg, Erlangen, and Berlin; and

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<sup>1</sup> Gratitude is expressed here to Gertrud Kuhn, Chief Librarian, Institut für Auslandsbeziehungen, Stuttgart, Germany, for providing copies of the four biographical entries on which this information is based.

combined a gay student life with diligent work on his medical studies. In 1858 he received the M.D. degree in Erlangen, and submitted an original thesis on structural principles of the convolutions in the brain. He then went on to Wiesbaden where he received his practical training as an ophthalmologist at the Eye Institute (Augenklinik) which was privately owned by Alexander Pagenstecher. After completing this training he remained for some time at the Surgical University Clinic (Chirurgische Universitäts-Klinik),



Dr. Rudolf Berlin, German ophthalmologist who coined the term "dyslexia" in 1887. (*Re-touched photo; artwork by Marney Wagner.*)

under the supervision of Victor v. Braun, and then moved to Stuttgart to open a private practice and eye clinic.

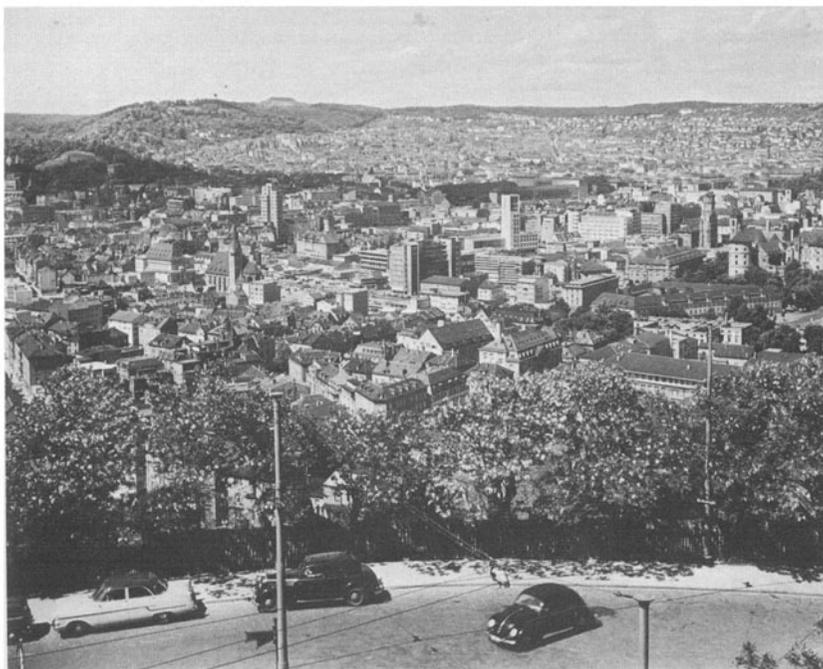
In Stuttgart, Berlin also began to teach and in 1875 he was awarded the title of Professor at the Veterinary Institute (Thierärztliche Hochschule) where he lectured on comparative ophthalmology. In 1890 he went to Rostock to become director of the Eye Clinic there. He was happy there since Rostock was located in his homeland and he had never tried to suppress the accent of this region in his speech. Suffering from arthritis for years, Berlin died on September 12, 1897, at the age of 64. The place of burial seems something of a puzzle; the four different sources give three different places: Linthal, Switzerland (Handbuch der gesamten Augenheilkunde); Stachelberg, a spa (Wilhelmi); and Rostock (Allgemeine deutsche Biographie, and Biographisches Jahrbuch und Deutscher Nekrolog).

Berlin made numerous contributions to medical research, among them studies on depth perception in animals, removal of objects in the eye, and left-handed writing behavior. He was also a co-founder of the *Journal of Comparative Ophthalmology* (Zeitschrift für vergleichende Augenheilkunde). He will best be remembered by the non-medical professions for his coinage of the word dyslexia (*Dyslexie*), the symptoms of which he observed in connection with treating some of his private patients who complained, among other things, about headaches and difficulty with reading the printed word.

#### A SPECIAL KIND OF WORDBLINDNESS (DYSLEXIA)

In the first few paragraphs of Berlin's monograph on dyslexia he tries to justify the coinage of the term when he states that the condition actually belongs to the group of aphasias in a general sense and is also closely related to Kussmaul's *Wortblindheit* (wordblindness) from which it is to be distinguished probably only in degree rather than kind. The term implies that the condition or symptom has as its characteristic a difficulty with reading, and at the same time it intends to express the cause of the disturbance in the same way as is implied in the terms alexia and paralexia, namely a physical disease of the brain. Berlin justifies his choice of term as being in line with usage in the international medical literature. He quickly points out to the reader that if someone else could find a more suitable term which might be more satisfactory from a philological standpoint, he would gladly agree to the term.

Before Berlin discusses his theoretical views he first presents the reader with several case histories. "Herr B.," his first patient, was 66 years old and a civil servant. His complaints to Dr. Berlin included that he had difficulty with reading and that he therefore suffered setbacks in his work. When given a reading test, "Herr B." was able to read the first few words, then stopped and complained that he could not go on with reading. Physical examination revealed that vision was quite normal. The letters of the words he had read did not appear blurred; he simply could not go on reading and placed the book aside with some obvious disgust. Berlin noted that his patient was able to read the first few words without error and rather quickly. Ophthalmological examination did not reveal any pathology of the eyes. Berlin did not meet this patient again in later years, but he was told by a colleague that he had died of apoplexy after showing various cerebral symptoms. Berlin goes on to cite several more cases of what he now called *Dyslexie*. In each case he suspected a physical change in the brain as the cause of the condition but he had no idea of the specific anatomical nature of the change.



Stuttgart—Birthplace of the word "dyslexia." (*Ludwig Windstösser photo. Courtesy German Tourist Information Office, New York.*)

Berlin attempted to analyze his data based on the six case histories which he had collected over a 23-year period. He realized that his data were nomothetic and cross-sectional as he had been unable to follow his patients during the entire duration of their lives. He noted that all of these patients had the same manner of reading: they were able to read three to five words of middle-sized print. These few words were read correctly and never did they twist or scramble them in any way. Their reading halted abruptly after three to five words, read aloud or silently. The patients' speech in each case was fully intact. After ceasing to read they had feelings of discomfort but were unable to describe them. Eye diseases were only accidental when related to reading ability, never primary. Berlin assumed a brain dysfunction as the basis of the dyslexia and parenthetically remarked that he had seen similar symptoms in chronic alcoholics, in people following injections of large doses of salicylate, and in people with febrile diseases. For these cases he suggested the term "toxic dyslexia." His dyslexics had other symptoms besides a reading difficulty, mostly symptoms displayed on the right side of the body, which made Berlin speculate as to the specific location of the brain damage, namely suspected localizations in the left hemisphere. He saw dyslexia as a lesser degree of wordblindness, within the broader scope of aphasias. To him it was an "incomplete, isolated wordblindness." He stated categorically on the basis of postmortem dissections done on his patients brains that in all six cases which were examined, anatomical lesions were found in the left hemisphere of the brain. He tried also to prognosticate for future research efforts that an individual reading center eventually would be found in the human brain. From a diagnostic standpoint Berlin views his dyslexia as occurring at the beginning of the brain disease, frequently as the initial symptom of a brain lesion. Dyslexia was the initial symptom of each of his patients who eventually died of a brain disease. In contrast to Berlin's findings, Kussmaul's patients read short monosyllabic or dissyllabic words and word fractions, thus showing recovery stages of alexia and not primary dyslexia.

#### DISCUSSION

As can be seen, Berlin apparently was dealing basically with a neurological condition accompanied by a reading problem. Specifically, the patient was able to read, but only a few words initially, before he stopped and could not go on. We must assume that these patients were at one time able to read, i.e., that they had successfully acquired the reading process to some adequate degree.

Berlin's findings are not entirely incompatible with those of Samuel Orton who believed that behind the phenomena he observed in children's reading lay a basic state of ambiguous hemispheric dominance, physiological in nature, representing a faulty patterning of brain function. Orton proposed the term "strephosymbolia" for this condition. He also showed the way for remediating such conditions. Both Berlin and Orton looked at the faulty reading from a neurological standpoint, but one saw initial symptoms of a suspected brain lesion while the other saw faulty reading and believed it to be caused by the poor establishment of unilateral dominance in the brain, or a brain dysfunction.

Our more "modern" concept of dyslexia today shows that the various professional disciplines have still not found a unanimous verdict on the causative factors of faulty reading (Wagner 1971). Various theories are advanced in addition to those concerned with unilateral dominance, including minimal cerebral dysfunction, hereditary involvement, developmental lag, or emotional causation, but the behavioral symptoms are now described in a much more specific form. For instance, no one will argue that dyslexics frequently reverse letters and words, show clumsiness in many instances, have delayed maturation, and show secondary emotional reactions to their primary disability. Also, what has rarely been expressed is the fact that reading is a multi-varied process which can serve as a surface symptom in various instances, in the same way that fever is a symptom of medical problems. Berlin saw the patient struggle after reading several words correctly and break off abruptly after that; Orton observed the scrambled symbols which issued from his readers' mouths when reading, and from their pens when writing, and still others may see the reversal phenomenon as a primary symptom. All of these faults and errors observed in reading are part of one overall process, namely *reading*. Thus we have room in our theorizing on dyslexia for not one but several conditions, covering a variety of symptoms like a giant umbrella under which many different people seek refuge from the rain.

Professor Dr. Rudolf Berlin who coined the term will go down in the history of dyslexia as a keen observer and a pioneer.

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## THE INTERNATIONAL SCENE

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