

Biography of Prof. Dr. Albert Eckstein and His Studies in Türkiye

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ABSTRACT

Objective: The aim of the article is to contribute to the international academic literature within the scope of Web of Science with a comprehensive article that complies with academic criteria on Prof. Eckstein and his studies in Türkiye.

Materials and Methods: First, this study scans all the literature on the subject and found the necessary books and articles. It uses Prof. Baskan's archive for the photographs. We found the work of Dr. Nuriye Peker with the help of Prof. Akar. The article covers Prof. Eckstein's life and focuses on the period in Türkiye.

Results: During the 1930s, a group of German medical doctors, led by German-Jewish pediatrician Prof. Eckstein, migrated to Türkiye. Prof. Eckstein initiated scientific research on children's health and healthcare in remote Anatolian regions in 1937. This approach had a profound impact on the development of healthcare systems for large population segments in developing nations such as Türkiye at that time. Prof. Eckstein and his assistants like Dr. Demirağ, Dr. Doğramacı, and Dr. Cura are regarded as the pioneers of modern Turkish healthcare and health sciences.

Conclusion: Prof. Eckstein excelled as a clinician, educator, and researcher, specializing in infectious diseases, disorders of the central nervous system, the biology of premature and newborn infants, and preventive pediatric care. His work in Türkiye transformed pediatric practice and education by introducing Western medical knowledge and techniques. Eckstein's achievements include groundbreaking treatments for noma, an oral mucosa infection caused by *Borrelia*, and malaria.

Keywords: Albert Eckstein, history of medicine, history of pediatrics

INTRODUCTION

In the aftermath of World War I and the collapse of the Ottoman Empire, Mustafa Kemal Atatürk spearheaded a triumphant independence struggle from 1919 to 1922 against Allied forces, culminating in the formation of the Turkish Republic in 1923, with Atatürk as its inaugural president.

While the Ottoman Empire had progressed in certain domains, it trailed behind nations like Germany, Austria, and Czechoslovakia by approximately 5 decades in scientific and medical advancements. The higher education landscape inherited by the newly established Turkish Republic in 1923 comprised a few hundred Ottoman-era madrasas and 3 military academies, one of which had been expanded into a civil engineering institution around 1909.

The new government, with secularization as a constitutional cornerstone, recognized the imperative for modernization and implemented various strategies to achieve this goal.¹⁻³ In response to the push for modernizing higher education, Türkiye offered sanctuary to

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numerous professors escaping Nazi-controlled territories, beginning in 1933 and continuing throughout World War II. This influx of expertise contributed to the establishment of Ankara University, Istanbul Technical University, and Istanbul University.^{1,4}

Albert Eckstein was among the contributors to this initiative, introducing advanced pediatric healthcare knowledge and technology to Türkiye. Eckstein was one of several hundred knowledge transferors who sought refuge in Türkiye from Nazi-dominated regions.⁵ Collectively, these individuals preserved and generated substantial knowledge, facilitating its transmission to future generations.⁵ However, this historical period often remains overlooked and is not widely recognized.⁶

PROF. DR. ALBERT ECKSTEIN'S BRIEF BIOGRAPHY

Born on February 9, 1891, in Ulm, Albert Eckstein grew to become a prominent figure in medicine. He received his medical education at prestigious institutions, including the Universities of Freiburg, Leipzig, and Munich. His service in World War I garnered him recognition. Eckstein's early career involved research at the University of Freiburg's physiology and anatomy institutes, resulting in published works. During his medical studies, he worked alongside Johannes von Kries and Eugen Fisher on scientific studies at the Freiburg Institute of Physiology and Anatomy. Post-war, he joined the University Hospital for Children, receiving specialized training under Carl T. Noeggerath. In 1925, Eckstein became the medical superintendent at Düsseldorf's Children's Hospital, where he made significant contributions to the understanding of childhood encephalitis. His scholarly works include the notable monograph "Die Encephalitis im Kindesalter" [Encephalitis in Childhood], as well as comprehensive entries in encyclopedias and textbooks. Eckstein's achievements led to his appointment as a professor in 1926, and he later succeeded Arthur Schlossmann as the medical superintendent of the Children's Hospital. Within the 1920s, Adolf Gottstein and Ludwig Teleky made critical commitments to the improvement of cutting-edge health sciences, providing young German specialists with the most recent logical revelations in developing areas.^{1,7}

The young researcher gained access to his director's family by marrying his daughter, Dr. Erna Schlossmann. She was in charge of the Auguste-Viktoria Children's Home and was also involved in social hygiene. Social hygiene was his father-in-law's area of expertise.^{1,8-12} Up until 1935, Eckstein focused on infectious diseases and tuberculosis, and he contributed a chapter on smallpox to the Textbook of Internal Medicine.¹³

In 1935, under the Hitler regime, Albert Eckstein was disgracefully ousted from his role. Subsequently, he was granted a position at a newly founded university in Ankara. At that time, Ankara was still a modest city, but it had been chosen as the capital by Atatürk, the modern founder and president of Türkiye. Numerous German professors were brought into the university. In spite of the difficulties posed by the lack of a proper clinic, Eckstein dedicated himself to creating a contemporary pediatrics institute and made significant strides. He contributed to the establishment of a comprehensive polyclinic care system. Through extensive travels throughout Türkiye, Eckstein, with the support of his wife, initiated and broadened a preventive

healthcare approach for infants and children, which led to enhancements in the milk supply.

Following World War II, Albert Eckstein received multiple job offers from various German universities. However, he declined the opportunity to serve as the Chair in Pediatrics in Düsseldorf, a position offered by Fritz Goebel, the Director of the Children's Hospital at that time. In 1950, Albert Eckstein left Türkiye to take on the role of Full Professor of Pediatrics and Director of the University Children's Hospital in Hamburg, succeeding Rudolf Degkwitz (1889-1973). His choice was influenced by his wish to be closer to his 3 sons, who were pursuing their studies in England.

Unfortunately, Albert Eckstein's time in Hamburg came to an abrupt end when he died from a heart attack on July 18, 1950, at 59 years old. His funeral service included a eulogy given by his close associate, Erich Rominger (1886-1967). Albert's oldest son, Herbert Eckstein, went on to make significant contributions to the advancement of pediatrics in Ankara. He was a "pediatric surgeon" in Hacettepe University Faculty of Medicine.¹ Renowned for his expertise in pediatrics, Albert Eckstein excelled as a clinician, teacher, and scientist. His areas of specialization encompassed infectious diseases, central nervous system disorders, premature and neonatal biology, and infant and child preventive care. While working in Ankara, he made significant contributions to the study of noma, an oral mucosal infection caused by *Borrelia*, its treatment, and malaria. Eckstein's students held him in high regard, and he, along with his family, made a profound and enduring impact on pediatric medicine in Türkiye.¹⁴⁻¹⁸

PROF. DR. ALBERT ECKSTEIN IN TÜRKİYE

His Research Trips in Anatolia

In Düsseldorf, Dr. Eckstein received a letter on July 1, 1935, informing him of his dismissal from the Prussian Government service by June 1935. This directive, dated June 12, 1935, bore the signatures of Adolph Hitler and Hermann Göring.¹⁵⁻¹⁹ Following this, the Emergency Organization for German Scientists facilitated an employment opportunity for Dr. Eckstein at the Ankara Numune Hospital, extended by the Turkish Government.^{1,10,15} Although Dr. Eckstein had potential job prospects in England and a provisional offer from the United States, he and his spouse deemed the Turkish proposal more reliable and assured.^{1,14,18} The contract was formalized on August 1, 1935, in Berlin by Hamdi Arpağ, Ambassador to Germany.^{1,14,17} Dr. Eckstein was also expected to learn Turkish and deliver his lectures in this language upon the establishment of the Ankara University Faculty of Medicine. Until then, there would be no changes in the annual contracts.¹⁴

In September 1935, Dr. Eckstein and his family arrived in Ankara. Dr. Eckstein began reorganizing the Numune Hospital Pediatric Clinic.^{1,10} His wife Erna was not allowed to work as a pediatrician in Türkiye.¹ Over the course of 3 months, they embarked on extensive voyages through west and central Anatolia, accompanied by their Turkish assistant, Dr. Selahattin Cevdet Tekand, to provide medical care in rural areas.^{1,10,11,20} Their efforts led to significant scientific investigations and the provision of medical care, ultimately forming the basis for a comprehensive pediatric health care system in Anatolia.^{1,10,11,21}

At the behest of Turkish Health Minister Refik Saydam, Dr. Eckstein compiled a report on children's health and diseases in Türkiye,^{1,14,21} highlighting major illnesses such as malaria and necrotic ulcerative stomatitis (Noma), along with other conditions including diarrhea, malnutrition, and tuberculosis.^{1,10,11,21}

The historical context of noma within Turkish pediatrics is particularly significant. Albert Eckstein, a refugee from the Nazis, arrived in Türkiye in 1935 and conducted extensive research in Anatolia from 1935 to 1950, concentrating on the epidemiology and management of noma. His findings revealed that noma was prevalent in Türkiye, particularly in rural regions. He noted that urban cases were rare and typically involved individuals who lived under extremely impoverished conditions. Eckstein meticulously documented outbreaks of noma in specific villages and occasionally within particular familial units. While noma can affect individuals across various age groups, he observed that nearly 50% of the cases occurred in children under 4 years of age.

Immunocompromised states were identified as a prerequisite for the development of noma, although the underlying etiological factors varied geographically. In Western Europe, where the incidence was less frequently reported, measles was often identified as a significant causative factor. Conversely, Eckstein's analysis of approximately 300 cases indicated that malaria was the principal contributor to noma's prevalence in Türkiye. Other immunosuppressive conditions, including typhoid fever, typhus, whooping cough, measles, kala azar, leukemia, and sarcoma, were also documented as notable risk factors, compromising the host's immune response. Eckstein's findings highlighted that with relatively minimal intervention, substantial advancements could be made in the global understanding and management of noma.²²

The report incorporated crucial social-hygienic information such as diet, water quality, hygienic practices, infant care, and social status too.^{9,11} During their 2-year research expeditions, the team visited 188 villages across 25 provinces and interviewed nearly 25 000 women, examining prevalent diseases

and the social factors impacting the rural environment.^{1,11,18,21} The creation of "Centers for fighting malaria" evolved into Health Centers, providing consultations for mothers and preventive care for infants, setting the stage for future pediatric services.^{1,10,11,16}

Their research revealed that diarrheal diseases were primarily bacterial in nature, requiring antibacterial medication or serum therapy.^{9,10} As a result of their work, child mortality in Türkiye decreased from 35%-40% to 12%,^{1,10,17-20} though the Ecksteins themselves acknowledged statistical limitations in their findings (Figures 1 and 2).^{1,10,20}

His Assistants and His Dream of a Children's Hospital

From 1935 to 1950, Dr. Eckstein was employed at Numune State Hospital, which was the largest medical facility in Ankara during that period. In June 1945, he was named the first Chief of the Pediatric Clinic after it was founded at the Faculty of Medicine (Figure 3).¹ Dr. Bahtiyar Demirağ completed his pediatric training in Berlin between 1936 and 1939 and was the first associate professor under Eckstein.¹⁷ When Eckstein left Türkiye in 1950, Dr. Demirağ took over his position and held it for 30 years. Other significant team members were Drs. Selahattin Cevdet Tekand, Sabiha Cura Özgür, İhsan Doğramacı, and Neriman Olgür.^{14,21} Further Prof. Demirağ and Prof. Özgür were also the pioneers of pediatrics in Ankara and Izmir.^{1,14}

Dr. Eckstein envisioned a 300-bed pediatric hospital in Ankara, with 50 beds each for orthopedic and tuberculosis patients, and the rest for other childhood illnesses. This was an ambitious plan, given Ankara's population was only 122 720 against to data of State Institute of Statistics in 1935 (Publication No. 537).

The project was initially delayed by World War II. Despite a 2 million Turkish Lira allocation in the 1948 government budget, the project was eventually abandoned, leading to Dr. Eckstein's departure from Türkiye. In November 1948, he wrote a detailed letter to the Dean of Ankara University Faculty of Medicine, expressing his frustration at the budget rejection. He mentioned his original 1935 report to the Ministry of

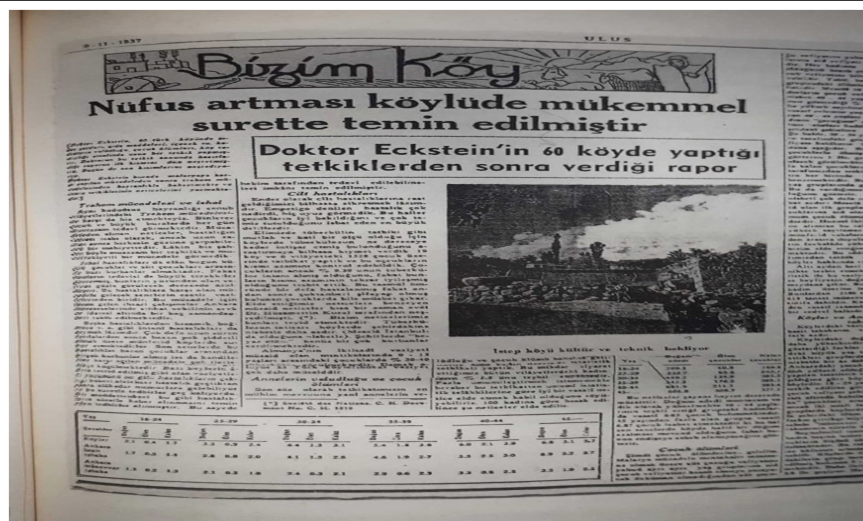


Figure 1. Dr. Eckstein's report after his research in 60 villages: population growth achieved in villages (1).



Figure 2. Dr. Eckstein thanks government for reduction in infant mortality: special archives of Prof. Dr. Mazhar Semih Baskan, Albert Eckstein Collection.

Health, based on his 1930 article "Richtlinien für den Betrieb von Kinderkrankenhäusern und Krankenhausabteilungen für Kranke Kinder." The letter outlined his 13-year effort to build the hospital and his numerous proposals. He urged the Dean to secure funding for a modern university pediatric clinic.

Following Dr. Eckstein's departure, 2 of his assistants realized his dream of a children's hospital in Ankara. Dr. Bahtiyar Demirağ started a 150-bed hospital in 1953, while Dr. İhsan Doğramacı established a 300-bed facility at Hacettepe Children's Hospital. It is evident that these 2 respected pediatricians were inspired by Dr. Eckstein's vision.^{14,18}

Scientific Works

Eckstein's remarkable accomplishments highlight the potential of the modified social-hygienic model he employed to deliver healthcare on a large scale. By adopting this approach, displaced German experts catalyzed innovations in the health services of their host countries.

Despite receiving an invitation, Eckstein was worried about the absence of social security in the United States. However, he was not discouraged by the necessity to acquire Turkish language skills. Undaunted by this unfamiliar tongue, he swiftly produced the first textbook on pediatric illnesses in Turkish (Çocuk Sağlığı Ders Kitabı ve Süt Çocuğu Hastalıkları Ders Kitabı).²³ Throughout his roughly 15-year stay in Türkiye, amid extensive work, travel, planning, and administrative duties, he authored 50 publications. Many of these works remain pertinent today due to their lucid and pragmatic insights. A significant portion of the information in these distributions began from comprehensive research started in 1940. His 1941 book Çocuk Neşvünema, Tegaddi ve Metabolizmasının Fizyolojisi ve Patalojisi made a critical contribution to Turkish pediatrics for the most part, and to child development and digestion system specifically.^{8,14,24} Another critical book by Eckstein, Türkiye'de Çocuk Hastalıkları ve Çocukların Korunması Problemleri, was published by Ankara University Faculty of Medicine.²⁵ Amid his time in Türkiye, Eckstein served on the Publication Board of



Figure 3. The founders of the Ankara University Faculty of Medicine (1945-1949). 1—Prof. Dr. Albert Eckstein, 2—Erna Eckstein, 3—Dr. İhsan Doğramacı, 4—Bahtiyar Demirağ. Special archives of Prof. Dr. Mazhar Semih Baskan, Albert Eckstein Collection.

Annales Paediatrici (1938/1939), a prominent European pediatrics journal. In October 1938, he was instrumental in organizing the first Turkish Pediatrics Congress in Ankara.^{23,26}

During his time in Türkiye, Eckstein focused on studying the distinct manifestations of well-known pediatric illnesses, particularly in rural areas. He noted that certain diseases, such as malaria and necrotic ulcerative stomatitis, posed unique challenges for pediatricians, requiring innovative approaches tailored to children's specific needs.¹⁷ Eckstein's scientific progress during his travels is showcased in his 1946 monograph "Malaria im Kindesalter."²⁷ Dedicated to Arthur Schlossmann, this publication methodically described previously undocumented disease forms, specifically atypical presentations of malaria in children that Eckstein learned to identify and manage during his extensive journeys through rural Türkiye. These unusual forms of childhood malaria sometimes manifested as intense thirst or sleeplessness accompanied by abnormal behavior and altered consciousness, with unusually high fatality rates significantly impacting overall mortality. The monograph included 90 case studies illustrating common childhood ailments, detailing symptoms, temperature patterns, differential diagnoses, congenital conditions, and malaria in infants. It also covered complications, acute and prolonged coma, recurrences, co-occurrences with other diseases (particularly typhoid and tuberculosis), chronic malaria, long-term effects, and treatment options. Furthermore, Eckstein incorporated "over 1000 clinically relevant observations" from his survey research.

In an earlier work titled "Encephalitis im Kindesalter," published in 1929,²⁸ the author documented various forms of encephalitis in children, offering novel insights that differentiated pediatric encephalitis from its adult variant. For example, while chronic encephalitis in adults typically manifests as immobility and lethargy, in children and adolescents, it presents as diverse forms of asocial behavior. The majority of acute encephalitis cases in children lead to partial recovery and eventually progress into chronic manifestations of the disease over time.

CONCLUDING REMARK

After serving in Ankara for 14 years, Eckstein contemplated returning to Germany following 1945. His work was

acknowledged by post-war Germany, resulting in various accolades and opportunities. In 1948, the Medical Academy in Düsseldorf bestowed upon him honorary citizenship, and he received offers for full professorships in pediatrics from multiple German universities.^{1,5,9,29} At the same time, he continued his work at Nümüne Hospital (Figure 4). Eckstein gave a conference in Freiburg on June 22, 1948.¹ Although presented with several options, he ultimately decided to join the University of Hamburg faculty. He delivered his final lecture in Türkiye on December 24, 1949 (Figure 5) and left Ankara on December 25, 1949.^{1,30,31} But he left a pleasant memories behind. As his first official assistant, Dr. Nuriye Peker, stated in her private letters, he acted in good faith and was closely interested even in the private problems of his staff. Although he was very meticulous in academic matters, when the time came, he did not hesitate to be tolerant rather than prescriptive.³²

His first lecture there centered on "Problems of pediatric care in Türkiye" in Germany.^{1,33} Sadly, Eckstein died in Germany at the age of 59, merely a year after his homecoming. Among German-Jewish émigré professors, he was regarded as a notable trailblazer in social hygiene and early health sciences. His story is considered a poignant example of how historical events can impact the scientific community.^{1,34}

CONCLUSION

A renowned medical professional, Albert Eckstein excelled as a clinician, educator, and researcher, specializing in infectious diseases, disorders of the central nervous system, biology of premature and newborn infants, and preventive pediatric care. His work in Türkiye transformed pediatric practice and education by introducing Western medical knowledge and techniques. Eckstein's notable achievements include groundbreaking treatments for noma, an oral mucosa infection caused by *Borrelia*, and malaria. He also implemented advanced methods for gathering public health information and employing statistical analysis to design and execute nationwide health services. These efforts resulted in the elimination of Noma and a marked decrease in associated fatalities, as well as a significant reduction in infant mortality rates through enhanced prenatal and postnatal care. Eckstein's expertise has served as a source of motivation for fellow medical professionals and



Figure 4. Ankara Numune Hospital Pediatrics Clinic doctors (1947) (1).



Figure 5. Prof. Dr. Eckstein's last lesson was in Ankara University Faculty of Medicine (December 27, 1949). Special archives of Prof. Dr. Mazhar Semih Baskan, Albert Eckstein Collection.

students, leaving an enduring impact on pediatric healthcare in Türkiye.

Availability of Data and Materials: The data that support the findings of this study are available on request from the corresponding author.

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