

Part II  
THEODOR ESCHERICH

and

CHILD-CARE IN VIENNA

Compiled by Ernst Weber in 1990

Sonny's father, Theodor Escherich, was born in Ansbach (near Nürnberg), Germany on November 29, 1857. His father, Ferdinand Escherich was a well known Physician and later, Professor of Medicine at the University of Würzburg which had been founded in 1582 by the Bishop Julius who also was the Duke of Würzburg and after whom the well known Julius Hospital in Würzburg was named. Ferdinand Escherich was also royal government counsel and "Kreis-Medizinrat" (circuit medical adviser). He was born in Aschaffenburg, Germany, April 29, 1810 and died in Würzburg, March 21, 1888. The mother of Theodor Escherich was Maria, Freilin Stromer von Reichenbach (daughter of Johann Sigmund Ludwig Karl Freiherr Stromer von Reichenbach) born January 21, 1818. She was married (as the third wife) to Ferdinand Escherich on February 17, 1857 and died September 24, 1862 most likely as the result of the birth of the younger son, Ferdinand, brother of Theodor, who died himself January 1, 1867. At that time, long before cognizance of bacteria, many mothers died in childbirth and almost half of the babies died before getting 4 or 5 years old.

The family tree of the Escherichs, collected by Leopold Pfaundler in 1892 from notes of Theodor's father, Ferdinand, reaches back to Andreas Escherich, born 1612, who died 1672. Earlier data are probably lost due to the atrocious Thirty Year

War (1618 to 1648) between Catholic South Germany and Austria against the Protestant Northern Germany and Sweden. Sonny told of the Escherich family going back certainly to about 1200, having then possessions in the neighborhood of the then Habsburgs, and carrying the title of Freiherr, i.e., landlords directly responsible only to the reigning Emperor, then designated "Holy Roman Emperor of the German Nation". The attractive and elaborate Coat of Arms of the Escherichs is also reproduced on the family tree. Actually one of the nephews of Sonny's father who wanted to join the Austrian military officer corps requested Sonny's father to support his application for restituting the title but did not succeed because Escherich found it useless because he had no male heir.

Apparently, as a young man in the "Gymnasium" (secondary school) Escherich joined in pranks which brought him rebuke and referral to a school run very strictly by the Order of Jesuits which, however, did not leave any mark on his personality.

Theodor Escherich studied 1878 to 1880 in Strassbourg which had become German in 1871 but still used French as the common language so that Theodor spoke French fluently. He also spent time at the Universities in Kiel, Berlin, Würzburg and finally in München where he obtained his M.D. in 1881 at the age of 24. He spent 1882 at the Würzburg medical clinic where under Professor Karl Gerhardt, an outstanding internist, he advanced soon to first assistant. Gerhardt had charge of the then small but outstanding baby clinic of the Julius Hospital and had started publication of a handbook of children's diseases, the first one in the German language. Probably through his

influence, Escherich now developed keen interest in young children, particularly babies and the high mortality that then existed. He took leave and went to Paris where Charles Michel Billard (1800-1832) had published the first scientific treatise on illnesses of newborn babies, working in Paris at the first children's hospital in the World! Escherich also studied there with Jean Martin Charcot (1825-1893) one of the greatest figures in French medicine, from whom he also learned hypnotism and became very adept but never used it in medical treatments. Escherich also went to Vienna where Professor Widerhofer had attained a high reputation in children's disease identification in the St. Anna Children's Hospital, then, the first children's hospital in the German speaking countries! Here, Escherich must have decided to concentrate on bacteriology as applied to babies' metabolism.

Back in Würzburg, as assistant to Dr. Gebhardt, Escherich was sent by the Bavarian government to Naples, to participate in the study of a cholera epidemic which again directed his attention to bacteriology which had been developed under Robert Koch and had found strong interest in the medical world. Dr. Robert Koch (1843-1910) received the Nobel prize in physiology in 1905 for his outstanding bacteriological techniques and investigations. Escherich now went to München in late 1884 and associated with Dr. Frobenius who had worked closely with Dr. Koch.

In the laboratories for bacteriology of Dr. Otto Bollinger and the chemistry laboratory of Dr. Carl von Voight, Escherich studied the intestinal flora of infants for possible clues to the epidemics of diarrhea. He published in the issue of August 15, 1885 of "Fortschritte der Medizin" (Progress reports in

medicine) the original research paper (in German) "The Intestinal Bacteria of the Newborn and Infant" with on page 518 of volume 3 the description of "Bacterium Coli Commune", today referred to as Coli E. or Escherichia Coli. To quote from an article "How E. Coli got its name" in Hospital Practice, December 1982 by Dr. Harold J. Morowitz: "Today's wonderbug, E. Coli, entered human history in the messy diaper of a Munich infant, a truly modest start for the most widely chronicled organism in modern biology...And so it happened that Dr. Theodor Escherich has been immortalized, his name or the abbreviation E. appearing thousands of times each month in scientific literature".

Whenever Sonny and I attended meetings of the National Academy of Sciences and we met a biologist or medical researcher or practitioner and he learned Sonny's maiden name Escherich, he bowed in respect. When we visited Israel in 1971 and came to Rehovoth, we found a medical pavillon named Bela Schick Pavillon (Schick was a student and assistant of Escherich). Inside the building was one section with babies under observation and the medical guide said upon questioning by Sonny: "Oh, this is a special group. We study all possible effects of Escherichia Coli" - where upon Sonny, of course, replied "You meet with an Escherich" - which had as effect that we had to take photographs.

But, to come back to Theodor Escherich, the same publication also described the bacterium lactis aerogenes which occurs normally with E. Coli; he identified both of these bacteria as normal parasites as long as the intestinal functions run normally. Because of his bacterial findings, however, Escherich became a strong advocate of breast feeding finding the mother milk germ free,

but external feeding exposing the infant to environmental and often dangerous bacteria. How correct Escherich's advocacy was is indicated by the recent note "New medical research findings show that breast milk may contain antibodies against cholera, that it affords greater protection against diarrheal diseases than other feeding modes, and that it contains a substance that kills a variety of parasites responsible for intestinal disorders." (UNICEF, 1987).

On the basis of his contributions, Escherich became associate professor in 1886. He continued the studies of nourishment and digestion of babies particularly at the clinics of Hauner's Children Hospital in München and arrived at a faultless description of the flora of the meconium and feces of infants and perfected fermentation tests as emphasized in a letter to Sonny by Dr. Gilbert Dalldorf (1900-1979), member of the U.S. National Academy of Sciences whom we had met in Washington, D.C. From these physiological studies, Escherich then developed an entirely new system of baby feeding on the basis of regulated volume and protein content in accordance with quantitative tables which he developed and which were then used generally for several decades.

In 1889 he was called to Graz as Professor of Pediatrics and Director of the children's clinic which he rather rapidly renovated and developed into one of the best equipped children's hospitals in Austria. As indication of the recognition by the public, within ten years the number of children in the outpatient division grew from 3,000 to 10,000 and the number of medical care days spent by children in the hospital increased from 15,000 to 26,000.

When early in 1890 an epidemic occurred of infant tetanism, i.e., a muscular hypertonicity similar to tetanus with strong

nervous reactions, Escherich concentrated upon this illness and together with Wagner-Jauregg (later guardian of Sonny) applied for the first time ever galvanic diagnostic examinations. He reported in Berlin at an international Congress in the summer, 1890, on this "idiopathic tetanism in children".

It happened that in March, 1891 Professor Leopold Pfaundler came to Graz as Professor of Physics at the same University. He was joined in the Fall by his family, then comprising wife and four children, the oldest a daughter, Margarete just 21 years old. Rather soon, Escherich must have met this family, fell in love with Margarete, got engaged March 16, 1892 and they were married June 4, 1892. The wedding took place in the chapel at Maria Grün near Graz. Margarete had as family witness her uncle, the Lt. Colonel Hans Steffan and Theodor had as his witness, General von Limprunn from Bavaria, his brother-in-law. The young couple spent their honeymoon on the Wörther lake in Carinthia, Austria. Margarete was a very beautiful young lady with strong artistic talent for oil painting which she perfected later so that all the family has lovely samples in their homes. She was elected member of the Academy of Arts in Vienna about 1934.

In 1893, April 29, Margarete had the first child, a son whom she had baptized Leo after her grandfather Leopold, and to whom she was very attached.

Continuing his research in infectious diseases, Escherich also established a pavillon for diphtheria, studying bacteriology as well as possible serums and with Klemensiewicz he could in 1893 demonstrate complete cures. In 1894 he was appointed to the Chair of Pediatrics and in 1895 he published the monograph

"Diphtheria, Croup, Serum Therapy", the year Sonny was born. Actually, the intense research and clinical activities had brought many outstanding members to the medical faculty in Graz, like Rollett, Nicoladoni, Friedrich Kraus, Wagner-Jauregg (already mentioned), Anton and Rosthorn (a distant relative to the Pfaundlers).

When in 1902 the Chair for Pediatrics in Vienna became available through the death of Widerhofer, the faculty unanimously proposed Escherich as his successor. Because of the far wider possible impact being in the capital of the Empire, Escherich accepted, knowing full well he had to build up again from the rather outdated St. Anna Children's Hospital.

Shortly after his transfer to Vienna, he arranged a meeting of a select group of aristocratic ladies on January 25, 1903 in the Salon of Mrs. Ida von Friebeis, pleading with them to organize a voluntary association "Säuglingsschutz" (Baby Care). He pointed out that because newborn babies were not admitted to hospitals, there was a need for special care for babies due to the high incidence of digestive disorders and severe infections which led to the high infant mortality. His strong and charming personality achieved that Archduchess Isabella (*Erzherzogin*) accepted the honorary leadership (patronage) and the Princess Rosa Croy-Sternberg the Presidency, which assured at once generous financial support permitting the establishment of a dispensary and a training school for nurses who soon became known all over Austria as the "Escherich Nurses". Escherich developed this organization "Säuglingsschutz" into a counselling agency for mothers to strongly advise breast feeding and at the same time make available carefully checked milk for babies that could not be continued on breast feeding.

Since the building of a new hospital got delayed, he renovated and expanded the old one, installed laboratory and x-ray facilities, and created as a first undertaking in Europe a children's terrace on the roof of the new clinic.

Escherich then published in late 1903 an extensive chapter on the Bacterium Coli E. in the "Handbook of Pathogenic Micro-organisms". He had become the leading bacteriologist in the field of pediatrics and an authority on infant nutrition so that he was invited as the sole European pediatrician to address the International Congress of Arts and Sciences in September 19-25, 1904 at the St. Louis World's Fair in the U.S.A. His address "Foundation and Objectives of Modern Pediatrics at the Turn of the Century" was republished by Professor Theodor Hellbrügge in "Documenta Pædiadrica" (Pediatric Documentation) as reprint from the journal "Der Kinderarzt" (The Children's Physician) as part of the collection "Founders and Fundamentals of Pediatrics", 1979. In this brochure, Theodor Escherich's picture is reproduced together with four of his students, all counted among these founders; namely: Dr. Meinhart von Pfaundler (1872-1947) (brother-in-law); Director of the University Clinic for Children, <sup>Munich; Dr. ERNST MORO (1874-1951)</sup> Heidelberg; Clemens Freiherr von Pirquet (1874-1929), successor to Theodor Escherich in Vienna; and Bela Schick (1877-1967), Mt. Sinai Hospital in New York, 1923-1942).

Margarete spent as often the summer of 1904 with her parents and her children in Tirol where her Aunt Marie Pfaundler had acquired a large house in Tyrolean style near the Piburger Lake which she had bought from a smith in the village Oetz. (see Part I for details) The children loved the place and the grandparents



were delighted with them. As had been arranged Leo entered in the Fall a private school in Graz near the grandparents where he took up fencing. Apparently, Leo paid no attention to pains in his abdomen and got violently ill.

His parents were notified at once and arrived quickly, but in spite of an emergency operation (before the days of antibiotics), Leo died on November 24. Margarete never forgave herself to have let the boy be away from home and carried resentment for considerable time.

Although it weighed heavily on the father as well, he could not neglect the professional responsibilities. In fact, the demands on his time had become enormous. He was named Hofrat (court counselor), was received by the Emperor Franz Joseph and invited on several occasions with his wife, Margarete, to dinner at court. He also was called to Csar Nikolaus of Russia whose son was a bleeder, to the King of Bulgaria and other royal families as consultant.

Inasmuch as Vienna was also a cultural center of world rank, the home of Escherich had become a meeting point of society and Margarete Escherich gave frequently so-called "soirees" and formal dinners at which scientists, military dignitaries, theater and opera stars as well as poets and performing artists participated, as for example, Gustav Mahler, Leo Slezak, operatic tenor, Josef Kainz, actor and Olga Wohlgemut, actress at the Burgtheater, August Eisenmenger, fresco painter, Rudolf Hans Bartsch, novelist, and many others; a circle well described in the book "Osterreich Intim" (The Intimate Austria) by Bertha Zuckerkandl, whose husband was the well known Professor of Anatomy, Emil Zuckerkandl,

at the University of Vienna, A colleague of Escherich and friend.

Because of the organizational activities and responsibilities, as well as important calls on emergencies, Escherich had to restrict somewhat his personal research, but he followed closely the work of and made many recommendations to his numerous assistants of which only the most prominent were mentioned above. Pirquet had observed that repeated vaccination against small pox produced a definitive reaction, but of lesser intensity than the first vaccination and concluded from that and other examples in 1906 the general sensitivity of the body to substances that are harmless and he called "allergy". He then surmised that this might indicate a means for diagnosis of certain infections and used tuberculin, a protein substance elaborated by the tubercle bacillus. In fact, he tried this on Escherich, upon his suggestion and on all the faculty members, only to find that all of them reacted in a positive manner as if they had tuberculosis infection. Sonny mentioned that her father, Escherich, had pointed to the fact, after reflexion, that in Vienna many people were found to have had slight tubercular lesions but never had active tuberculosis, i.e., had sufficient defenses not to let the infection become virulent. With adjustment of the dosage, Pirquet could then in 1907 announce the tuberculin skin test as definitive indication of active infection and therefore institute treatment and thus save many instances from getting severe. In fact, in the United States, tuberculosis had been the chief cause of deaths before 1909, but by 1960 had dropped to sixteenth place!

November 19, 1907 was also the fiftieth birthday of Escherich which was celebrated with addresses by representatives of patient children, of students, of faculty, and hospital administration.

An artistic certificate memorialized his contributions as pioneering researcher, as outstanding teacher, as marvellous organizer and as leading modern physician.

Escherich was also keenly interested in prophylactic measures to prevent diseases in children. He wrote a special paper on "The Importance of the School Physician in the Prophylaxis of Infectious Diseases" and arranged for special discussions of the proper function of school physicians in 1908 in meetings of the Austrian Association for Infant Research (Kinderforschung) held under his chairmanship. The Secretary of this Association was his former student Dr. Clemens von Pirquet. He also encouraged another former student Dr. Robert Dehne in 1907 to establish a model for the office of school physicians in the city Berndorf near Vienna where a large noble metal factory of the firm Krupp was located.

One year later in 1908, Bela Schick after experimentation, could announce the intracutaneous test for Diphtheria using the serum that Escherich had developed with Klemensiewicz already in 1893. In fact, the American Medical Dictionary lists under the heading Reactions:

Moro's reaction: an eruption of pale or red papules on a cutaneous area after the application of an ointment of 5cc of old tuberculin and 5g of anhydrous wool fat.

Pfaundler's reaction: (for the detection of typhoid carriers and the differentiation of recent and old cases) with Mandelbaum.

Pirquet's reaction: a local inflammatory reaction of the skin following inoculation with tuberculosis toxins.

Schick test: Intracutaneous injection of a quantity of diphtheria toxin equal to one fifth of the minimal lethal dose diluted in

salt solution.

Escherich had always dreamed to create in Vienna a large "Reichsanstalt" (Imperial) Center for "Säuglingschutz" (Baby Care) and for proper guidance and medical care for mothers. This most ambitious plan could only be realized several years after his death. He had, however, evolved detailed plans for the clinics and could follow the beginning of the actual building, but the actual completion came only in 1914. It was then put in operation by Leopold Moll, another student of Escherich who directed it for about 20 years.

Also, a summary paper on Scarlet Fever and its treatment was left unfinished. And yet, with all the organization innovations, the number of publications carrying the name of Theodor Escherich up to 1909 is at least 158, and in addition, there are 271 publications which he supervised; he always let an assistant be named first or even alone in order not to detract attention from the effort, even when under his guidance. Meinhart von Pfaundler published in the Münchener Medizinischen Wochenschrift (Medical Weekly of Munich) No. 10, 1911 a biographical memoir in which he said:

"Escherich did not recognize his limits, only the urge to more intensive living, to stronger fight, to more work. That even his amazing energy could give out, that anything could interfere that was stronger or more powerful than his will to create, that he could not think."

And so, Escherich died on February 15, 1911, three days after having suffered fainting and loss of speech, a case of premature arterial sclerosis.

The Annual Report of the Association "Säuglingschutz" (Baby Care) for the year 1910, issued May 9, 1911 had still been signed by Theodor Escherich as Director, and by Mathilde Gräfin Stubenberg Tinti as President and contains a brief memoir with emphasis upon the selfless service given by Escherich to humanity.

The immediate successor as Professor of Pediatrics became Clemens Freiherr von Pirquet, followed in 1929 by Ferdinand Hamburger, then after World War II by August von Reuss, all students of Escherich.

In 1912 a committee was formed to raise funds for a monument to Theodor Escherich. The President of the committee was Johanna Countess von Hartenau, The Vice Presidents were Clemens Freiherr von Pirquet, the successor to Escherich and Rudolf Sieghart, Governor of the Creditanstalt Bank. The efforts of this committee were, however, soon impeded by the murder of the Austrian Crown Prince Franz Ferdinand in July 1914 and in fact, World War I followed, ending with the disintegration of the Austro-Hungarian Monarchy in 1919 and the economic breakdown of the surviving new Republic Austria.

In early 1952, Dr. Bela Schick living in New York and having his professional office there, called in a letter attention of Dr. Henry F. Helmholtz, emeritus member of the Mayo clinic staff, Rochester, Minnesota, to the early leadership in Vienna, Austria for establishing proper baby care. Dr. Helmholtz replied: "... When I was in Vienna during my stay in Europe for the UN International Emergency Fund, I was very much impressed with the set-up of the Reichsanstalt (Imperial Center for Mother Counsel and Baby Care), as it was undoubtedly the most complete institution of its

kind that I know of." He also wrote to Dr. Reuss emphasizing the importance of restoring to the Institution its original purposes. In June an executive committee for the now called "Infant Protection League" was formed, and Drs. Reuss and Hans Czermak published a paper pointing to the need for action in view of the post WWII decline of baby health, but political events interfered again. However, recently a newly established "Theodor Escherich Plakette, pro meritis" has been awarded to Professor Walter Swoboda at the University of Vienna <sup>in 1986,</sup> for his service in furthering Pediatrics in Austria and for his contributions to the "Austrian Society for Promoting Children's Health".