

# History of Medicine

## The Jewish contribution to medicine

### Part III. The 19th and 20th centuries in the USA

H. DUBOVSKY

#### Summary

The Jewish hospital movement in the USA, which started in the last century for Jews as foreign immigrants and was extended to the general population this century, is an extensive organisation. Refugee physicians from Europe laid the foundations of Jewish medical involvement in medicine in the USA with Abraham Jacobi, the founder of paediatrics, Landsteiner, who discovered blood grouping, and Waksman, who evolved streptomycin. Other eminent workers, such as the Flexner brothers in medical education and research, Libman, who pioneered blood culture in the USA, and Salk and Sabin with the poliomyelitis vaccine were prominent in the major contribution of Jews to medicine in the USA.

*S Afr Med J* 1989; 76: 119-120.

The Jewish contribution to medicine in the USA has been extensive.

#### The Jewish Hospital Movement

This has been a remarkable feature there. Over the centuries Jews have had institutions for their poor and sick known; a *hekdesh* was attached to the synagogues. A deed in Ratisbon dated 1200 refers to a *Domus Hospitale Judaeorum*. With the evolution of hospitals Jews established their own in the major cities of Europe. The first American Jewish hospital is a prestigious institution today — the Mount Sinai Hospital in New York, started in 1852. Other Jewish hospitals were started in the major cities since it was felt at the time that because of the many recent immigrants from Eastern Europe Jewish patients needed a Jewish environment. From about 1920 Jews began to lose their foreignness and Jewish hospitals were not as necessary. They were, however, maintained since they provided employment for Jewish doctors who were generally discriminated against as regards appointments. When this discrimination declined in about 1950, Jewish hospitals had only 10-20% Jewish patients but were continued as a service to the community at large and were funded from Jewish sources. In 1966 there were 64 major Jewish hospitals in the USA, some of which specialised, e.g. the tuberculosis and chest diseases hospital in Denver that is known internationally for its research work.

Jewish medical schools were started in New York — the Albert Einstein College of Medicine of the Yeshiva University in 1955 and the Mount Sinai School of Medicine in 1968 — and they accept students of all denominations.

32 Monawee, St Andrew Street, Bloemfontein

H. DUBOVSKY, M.B. CH.B., D.P.H. (Honorary Lecturer in the History of Medicine at MEDUNSA)

Accepted 24 Oct 1988.

#### Physicians

Refugees from countries where oppression was practised formed a corps of eminent Jewish physicians in the USA. The earliest refugees were Jews of Sephardic origin escaping the Spanish Inquisitions of the 16th and 17th centuries, a form of religious persecution also practised in parts of South America. Russia was a source of refugees because of the 1880 pogroms, as was Germany in the latter half of the 19th century and again in the 1930s with the rise to power of the Nazis.

**Abraham Jacobi** (1830 - 1919) was German-born and trained. He spent 2 years in prison for his involvement in the 1848 revolutionary movement. He emigrated to America in 1853, after first seeking refuge in England after his release from prison in Berlin in 1851, where he is regarded as the founder of paediatrics. He held the first chair in that specialty in America in 1860 and founded its first paediatric clinic in New York. He was at various times president of the American Pediatric Association and the American Medical Association.

**Jacob Mendes DaCosta** (1833 - 1900) was born in Puerto Rico and qualified at the Jefferson Medical College in Philadelphia where he also held a professorship. Of gracious manners, he was known as 'the physician's physician'. His classic book *Medical Diagnosis* ran to 9 editions during his lifetime. He described DaCosta's syndrome, a functional disorder of the heart (neurocirculatory asthenia) commonly diagnosed in World War I as 'soldier's heart' caused by battle stress.

**Simon Flexner** (1863 - 1946), was a giant of American medical research who identified the organisms causing dysentery. He worked out the infective nature of poliomyelitis in 1909 by transferring the disease from humans to monkeys and from monkey to monkey. This was a step further than the work of **Karl Landsteiner** (1868 - 1943), a pathologist in Vienna, who in 1908 transferred poliomyelitis to monkeys using an emulsion made of the spinal cord of a poliomyelitis victim but without realising the infective nature of the disease. Landsteiner, also a Jew, emigrated to the USA in 1922. While working in Austria, he discovered human blood groups in 1901 for which he was awarded a Nobel prize for physiology and medicine in 1930.

Other Jewish participants in the field of poliomyelitis research were **Jonas Salk**, who produced an injectable vaccine in 1954, and **Albert Sabin**, who made the more convenient oral vaccine in 1961 that is still in use today and is the mainstay of poliomyelitis prevention. The trials conducted in the preparation of the poliomyelitis vaccines were extensive — Salk's involved 1.8 million children, at the time the largest field experiment in history. The massive costs of the research were met by the action of Eddie Cantor, who in his national radio show organised the 'March of Dimes' whereby the public sent their dimes (10 cent pieces) direct to the White House by arrangement with President Roosevelt, a personal friend who had been disabled by poliomyelitis.

**Abraham Flexner** (1866 - 1959), physician brother of Simon Flexner, at the request of the Carnegie Foundation

investigated medical education from 1909 to 1911 at home and abroad. He reported on medical education in North America in 1910 and Europe in 1912 with a comparative update in 1925. The effect in America was shattering, with several medical schools closing. He drew attention to problems relevant today as quoted recently by Benatar;<sup>1</sup> commercialism in medicine and the maintenance of philosophical, cultural and humanitarian factors in medical education.

**Emanuel Libman** (1872 - 1946) pioneered the practice of blood culture in the USA in 1906, as did Thomas Horder in England the same year. Also, both at about the same time (Horder in 1909 and Libman in 1910) established the aetiology of bacterial endocarditis with Libman being credited with the term 'subacute bacterial endocarditis'. Libman was called in for consultation when Gustav Mahler (1860 - 1911), the Jewish-born Viennese composer, was ill in New York in 1911. Working from the Mount Sinai Hospital, Libman established clinically and by blood culture that Mahler had a streptococcal bacterial endocarditis. However, the composer returned to Vienna, where he died 3 months later. Libman is best remembered for his description in 1924, with Benjamin Sacks, of non-bacterial verrucous endocarditis in lupus erythematosus. Libman was a renowned physician who treated famous patients including Albert Einstein, Sara Bernhardt and Dr Chaim Weizmann.

**Selman A. Waksman** (1888 - 1973)<sup>3</sup> made a great advance in tuberculosis treatment with his production of streptomycin in 1943. He arrived in the USA in 1910 as a poor Russian immigrant and chose to study soil biology rather than pursue a medical career because of his fascination with the rich agricultural soil of his native Ukrainian village. Enrolling at the small Rutgers Agricultural College, he eventually became professor of soil microbiology. His particular interest was in the processes by which the soil converts animal and plant residue into humus. As a student he had noted that microbacterial antagonism played a major role in these processes, particularly the obscure *Actinomyces*, later renamed *Streptomyces*. He spent 25 years studying this group of bacteria. When the US National Tuberculosis Association asked him to investigate soil organisms for a possible source of an anti-tuberculosis antibiotic, he selected the *Streptomyces*. About 10 000 strains were tested before finding one, *Streptomyces griseus*, which produced streptomycin. Using the techniques evolved by Waksman and the same source, the *Streptomyces*, 90% of the antibiotics in use today are produced, including kanamycin, neomycin, rifampicin, chloramphenicol, the tetracycline group, erythromycin and lincomycin.

**Maxwell Myer Wintrobe** (1901 - 1986)<sup>4</sup> may be called the father of modern haematology. Born in Nova Scotia, Wintrobe worked his way through medical school by teaching art and the violin and graduated from the University of Manitoba in 1926. He joined the Johns Hopkins Medical School in 1930. Wintrobe is known for his standardisation of normal blood values, which had been based on previous century standards

determined by inaccurate and obsolete methods. He devised the Wintrobe haematocrit tube and devised red cell indices, which made it possible for the first time to propose a sound classification of the anaemias. His book *Clinical Hematology* is regarded as a standard work.

It has not been possible to include many eminent American physicians, although mention could be made of household names in medicine. Béla Schick of the diphtheria skin test; Harry Goldblatt who demonstrated the association of hypertension with renal vascular disease; Arthur M. Master who introduced the concept of coronary insufficiency and devised the 'Master step test' for its detection; Henry Koplik (1858 - 1927) of the buccal 'Koplik's spots', the prodromal sign of measles; William Dameshek, the first to treat leukaemia with metabolites; Henry Heimlich of the 'Heimlich manoeuvre' for dislodging food impacted in the windpipe; and Leo Buerger (1879 - 1943) and Burrill Bernard Crohn who discovered diseases that bear their names — a vascular insufficiency of the legs and a granulomatous condition of the colon respectively.

Radiologists will be acquainted with the 'Bucky diaphragm' to prevent radiation scatter to provide a clearer picture. **Gustav Bucky** (1880 - 1963), head of the University of Berlin radiography department, emigrated to the USA as a refugee in 1930.

## Epilogue

Sir William Osler,<sup>5</sup> in an address to the Jewish Historical Society of London on 27 April 1914, said: 'Modern medicine is the outcome of two great movements of the mind of man, who is ruled in heart and head by Israel and Greece. From the one he has learned responsibility to a supreme being and the love of his neighbour ... from the other he has gathered the promise of Eden to have dominion over the earth.' Osler alluded to the composite character of medicine, which embraces the biological sciences and the liberal arts. This fusion of technology and humanism has been a traditional concept in Jewish learning — *limmud*, the acquiring of skills, and *chinnukh*, the motivation aspect, as previously explained by Lord Immanuel Jacobovitz, Chief Rabbi of Great Britain (Part I, reference No. 6). This could largely explain the interest and involvement of Jews in medicine.

## REFERENCES

1. Benatar SR, Flexner revisited — the challenge ahead (Editorial). *S Afr Med J* 1987; 72: 731-733.
2. Levy SD, Gustav Mahler and Emanuel Libman: bacterial endocarditis in 1911. *Br Med J* 1986; 293: 1628-1631.
3. Waksman SA. *My Life with the Microbes*. London: Robert Hale, 1958.
4. McGehee Harvey A. *Adventures in Medical Research. A Century of Discovery at Johns Hopkins*. Baltimore: Johns Hopkins University Press, 1976: 309-313.
5. Cushing H. *The Life of Sir William Osler*. London: Oxford University Press, 1940: 1089.