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PERSPECTIVES

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Remembering a microbiologist: Alfredo Sordelli (1891–1967)

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An essential task of universities and other academic institutions is the preservation of knowledge, including the work of scientists who have dedicated their entire life to understanding the basic physical rules of nature. One of these scientists was Alfredo Sordelli, a microbiologist whose work supported the development of science in Argentina (Fig. 1). The fact that three Nobel prizes have been awarded to Argentinean scientists says much about the achievements of a country far removed from the centers of science and technology. These scientists, however, are the tip of an iceberg that hides many unknown persons who built Argentina's scientific structure, including Sordelli.

Alfredo Sordelli was born in Buenos Aires. His father was an immigrant from Lombardy, Northern Italy, who, like many others, came to Argentina looking for a better future for his family [1]. Young Alfredo was a first-class student who was devoted not only to chemistry but also to photography, Wagnerian music and the poetry of Musset (he often taunted his friends with long recitations of the French poet's works). In 1912, his graduation from the School of Chemistry [2] was coincident with Walther H. Nernst's visit to Buenos Aires. This coincidence led to his attending Humboldt University in Germany to work under Nernst's supervision on the determination of water tension at low temperatures.

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Sordelli, however, was so impressed with Emil Fischer's work on carbohydrates and proteins that he decided to spend 3 days a week (working 10 h a day) with Nernst and three equally long days with Fischer. This arrangement was not acceptable to Nernst, and his refusal, along with the beginning of World War I, obliged Sordelli to return to Buenos Aires frustrated by his inability to work on carbohydrates [3].

Back in Argentina he was hired by the Instituto Bacteriológico. At the same time, Sordelli started to teach Biological Chemistry at the University of Buenos Aires, where he met Bernardo Houssay in 1915. Working together they developed the teaching of Biological Chemistry at universities in Argentina.

In 1925 Sordelli was appointed Director of the Instituto Bacteriológico and it was in this institution where he made his major contributions to scientific knowledge. In the field of immunology he contributed basic ideas that later allowed Landsteiner to propose the theory of haptens. Sordelli's accomplishments were also important in the field of preparation and quantification of bacterial toxins. Indeed, he developed methods for preparation and titration that have been adopted worldwide. His name became associated with bacterial taxonomy when he isolated and classified one of the causative agents of gas gangrene, *Clostridium sordellii* [4].

Sordelli's scientific career paralleled his administrative and technical duties in a country in which, at that time, everything had to be produced domestically, because of the lack of products and technology imported from the industrialized world. He developed methods for the preparation of insulin and other hormones together with their validation protocols, and vaccines against diphtheria and tetanus. He even organized the domestic production of penicillin. Sordelli also worked very hard towards the creation of an agency for the preparation and distribution control of biological standards in South America.

In 1944, he left the Instituto Bacteriológico for political reasons and continued his work in the Laboratorio de Microbiología, Facultad de Ciencias Exactas,

Fig. 1 Alfredo Sordelli (1891–1967)

Universidad de Buenos Aires. Along with only a few of his scientific contemporaries, Sordelli was convinced that sexuality existed in bacteria. He and his students performed experiments with native bacteria to prove this theory, but unfortunately they did not utilize the right strains. Nonetheless, the students that he trained never forgot the feeling for first-class science that they acquired from him. Nor did they forgot that it was Sordelli who introduced them, during the 1940s, to ''bizarre'' concepts such as lysogeny, conjugation and bacterial sex factors.

Finally, Squibb Laboratories hired Sordelli to organize an applied research laboratory. At this institute, people who later performed extraordinary work in the field of organic chemistry were trained – an acknowledgement to Emil Fischer and his work on carbohydrates.

There is no doubt that Sordelli was a generous and romantic personality who was interested in a broad spectrum of human activities. Because of these diverse interests, he did not pursue the demonstration of all his scientific theories, in contrast to the Nobel laureates and fellow countrymen Houssay and Leloir. But in one aspect no one surpassed him: he was able to boldly spread in his alumni and colleagues a piece of Prometheus' flame.

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