

## **We all do not belong to ourselves**

Ernst Abbe 1840-1905: a Social Reformer

Fritz Schulze, Canada

Linda Nguyen, The Canadian Press, Wednesday, January 2014:

**TORONTO – By the time you finish your lunch on Thursday, Canada’s top paid CEO will have already *earned* (my italics!) the equivalent of your annual salary.\***

It is not unusual these days to read such or similar headlines. Each time I am reminded of the co-founder of the company I worked for all my active life. Those who know me, know that I worked for the world-renowned German optical company Carl Zeiss. I also have a fine collection of optical instruments, predominantly microscopes, among them quite a few Zeiss instruments.

Carl Zeiss founded his business as a “mechanical atelier” in Jena in 1846 and his mathematical consultant, Ernst Abbe, a poorly paid lecturer at the University Jena, became his partner in 1866. That was the beginning of a comet-like rise of the young company.

Ernst Abbe was born in Eisenach, Thuringia, on January 23, 1840, as the first child of a spinnmaster of a local textile mill. *Till the beginning of the 50s each and every day the Lord made my father stood at his machines, 14, 15, 16 hours, from 5 o’clock in the morning till 7 o’clock in the evening during quiet periods, 16 hours from 4 o’clock in the morning till 8 o’clock in the evening during busy times, without any interruption, not even a lunch break. I myself as a small boy of 5 – 9 years brought him his lunch, alternately with my younger sister, and watched him as he gulped it down leaning on his machine or sitting on a wooden box, then handing me back the empty pail and immediately again tending his machines.”* Ernst Abbe remembered later.

The pay was minimal and many women worked to augment the spare income. Abbe’s mother was sickly and could not work, so the family of 4 had to manage with whatever the father earned. Only Sundays could they afford a piece of meat or a sausage. Despite their poverty his parents managed to put aside a nest egg of a few precious thalers for emergencies as there existed no insurance for sickness or invalidity or old age. Ernst Abbe soon attracted the attention of his teachers as unusually talented. Luckily he obtained financial support from his father’s employer to go to a higher school from which he graduated one year earlier with exceptional marks. In a family council it was decided that they could just afford sending Ernst to study at a university.

From 1857 till 1861 he literally hungered himself through the academic years in Jena and Goettingen, helped now and then by a prize of 20 or even 50 thalers for excellent extra work. When the city councillors of Eisenach learned of his achievements, they decided to grant him a modest stipend. He passed his doctoral exam in Goettingen with the note “exceptional” in 1861. He was now Dr. Ernst Abbe. During the next years he found employment here and there, but the pay for a young academic was not great despite the extra tuition, but still exceeded his modest requirements. Whatever he could spare he sent to his father and used to assist a friend who hadn’t yet found a job.

In 1863 he returned to Jena and was accepted at the university as unpaid Privatdozent. During the following 7 lean years he kept above water by extra tuition, publications, and extreme financial management, but maintained the appearance expected from his position, usually reserved for the sons of wealthy parents. His nickname: “Professor of Frugality”.

Slowly his financial situation improved and in 1870 he was promoted to Extraordinary Professor with a reasonable salary which allowed him to marry Elise, the daughter of his mentor Professor Snell, who had supported him in earlier years.

Meanwhile he met with Carl Zeiss who made some physical apparatus for him. Zeiss was busy building microscopes by the then common method of trial and error. Although his instruments enjoyed an excellent

reputation for quality, Zeiss felt that there ought to be a way to calculate in advance the formula for the optics. Realizing that his limited mathematical knowledge is inadequate, he approached the young professor of mathematics so see if he would help him.

Ernst Abbe was intrigued by that challenge, actually became totally obsessed with the problem. His first calculations were a failure but more research led him to the discovery of how the image in a microscope is formed. The next microscope built after his calculation was a stupendous success. From then on Carl Zeiss could advertise that all his instruments were of exactly the same top resolution, designed and manufactured according to Abbe's theory, no longer dependent on the trial and error method. Zeiss' microscopes sold like the proverbial hot cakes and soon Carl Zeiss could hand Ernst Abbe a generous cheque. The number of workers almost doubled every year as more and more microscopes were shipped out into the world. In 1886 the 10.000<sup>th</sup> microscope was sold, the number of workers had reached 500. At the jubilee celebration Abbe remarks to Zeiss: "*Actually it is a peculiar world we live in. The children gather money by the bag-full and their parents subsist with a few Pfennigs hardly visible even with a microscope!*" Abbe's real social conscience shows in this remark.

In December 1899 Carl Zeiss died and Abbe became the sole owner of the prosperous factory (There was a son, Roderick Zeiss, who did not share Abbe's philosophy and was bought out generously). Abbe now embarked also on a lecture tour to expound his philosophy to his peers of the industrial age, earning only scorn from the many newly rich millionaires. One of them, Carl Ferdinand von Stumm, went so far as declaring that it is his "ethical duty to carefully watch and correct the workers within the factory walls and their behaviour outside". He disallowed even the reading of certain (socialist, I suppose, ed.) newspapers and demanded that any intention of marriage must be reported "so that unsuitable marriages could be avoided". During the Fin de siècle it was taken for granted that an industrial undertaking ought to be organized like the military, if need be with penalties.

Abbe tried to stem these views and as a social reformer tried to improve the workers' lot, mindful of his own father's life, once a strong man, but with 48 years a worn-out shell. He was a millionaire by now, but still lived in the same simple house and walked or cycled to work every day. He lived modestly as always. He realized that he provided a livelihood for many people but also that without their work he would not be much better off. What good is a skilled worker if he dies with 50 or 60 years? I lose an experienced worker, the family loses its breadwinner, the state loses a taxpayer. Therefore, it behooves me to take care of my workers for the benefit of all. After all "*it would be foolish to think that my success is based solely on my own merit*".

In a speech in Jena in 1896 Abbe reconciles two contrary points of view as the *fazit* of his life: "*I can base my conviction, like few others, on my own experience... I became over time myself an entrepreneur and capitalist and had to make decisions accordingly. At the same time, however, I had to see my position through the eyes of a worker's son who could not grow any entrepreneur or capitalist eyes. I could contemplate my position from both sides. Therefore, I could draw my conclusions independently from any external considerations from the point of view of the public interest and general welfare*".

After long and conscientious reflection, with the agreement of his wife Elise, Abbe established the "Carl Zeiss Stiftung (Foundation)" in 1889 and 2 years later divested himself of his ownership, making the Foundation the sole owner of the company. Some of the revolutionary paragraphs of this Foundation are:

1. 8-hour working day (8 hours work, 8 hours sleep, and 8 hours time to live)
2. A living basic above average wage with profit sharing.
3. Annual paid holiday and paid national holidays.
4. Retirement with 65 and guaranteed pension.
5. Job security.
6. In case of sickness  $\frac{3}{4}$  of pay, medicines and treatment guaranteed.
7. Elected workers representation to consult with management.
8. Cultural involvement with library, theatre, sport, bath etc.
9. Sponsorship of education, child care, cultural institutions, universities.
10. **And, the reason for this write-up, no executive manager may earn more the 10 times the average pay of the workers..**

Tell this to a CEO of our times!!!!!!!!!! It goes without saying that Abbe had to overcome considerable objections and difficulties from both the government and the establishment.

*“Before the expiration of the 50<sup>th</sup> year since the founding of the Optical Works, in fulfillment of former promises, I make known to the officials and the body of workers of this and the Glass Works\*\* what arrangements have been made with a view to the final settlement of the constitution of both firms as well as with a view to the regulation of the scope of influence of the Carl Zeiss Foundation – in that I hereby hand to all employees in the two Works the Statute of the Carl Zeiss Foundation now completed and accepted by the Government.*

*I would request the employees of the Optical Works in particular to regard this Statute and the guarantees of the continuance of those principles (which have ever been in vogue in the direction and administration of the Firm) offered them therein, as a gift which I as former part proprietor of the Firm offered to the whole body of my co-workers to commemorate the 50<sup>th</sup> anniversary of its activity.*

*It is my earnest desire and hope that the Optical Works and the Glass Works may flourish and thrive upon those principles on which this Statute places both organizations – to the advantage of all who enter their portals, to the service of the common weal, and to the honour of the German Precision Technical Industry. Jena, August 26, 1896 – Dr. Ernst Abbe” (Translation: Larry Gubas)*

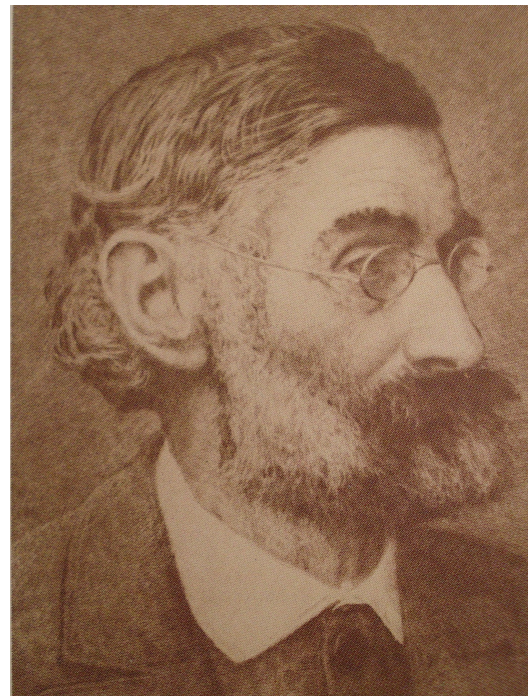
The Carl Zeiss Foundation is a legal entity within civil law with the same rights and obligations as an individual private person. There are no private or corporate owners of the Carl Zeiss Foundation. It can't be bought or sold and is the owner of all the Zeiss factories in the world (which includes the Schott Glass Works – known to you by their modern cooker tops). It is administered by independent officers from corporations, government, banks etc. all without pecuniary benefit from the company's profit. Abbe remained managing director with a fixed salary.

Abbe's concern was to safeguard the future of Carl Zeiss' work, and the statutes of his Foundation guarantee this still today. Other businesses in this field have come and gone, were bought and sold and closed. Like the pink Energizer-rabbit Zeiss keeps going on and on (and hopefully keeps paying my pension!).

Many of the Foundation statutes have meanwhile become standard in the industry, others have been adapted to modern times and requirements (e.g. health insurance is now provided by the state). But in 1891 Abbe's philosophy was truly revolutionary.

When Ernst Abbe died on January 14, 1905, the company employed over 1400 people and had delivered over 40,000 microscopes as well as many other new instruments, telescopes and binoculars.

Many books have been written about both Carl Zeiss and Ernst Abbe. Anyone interested in learning more about these two outstanding personalities can Google their names. I for one am proud to have been actively involved with the Carl Zeiss Optical Company, particularly since their reestablishment in West Germany after WWII. I wish today's CEOs would learn from Abbe's social philosophy. Workers and management of an enterprise are a symbiosis, working together for a common goal, not one exploiting the other. In the modern capitalistic business the lowest member of the totem pole, the worker, is squeezed to the utmost in order to maximize the profit for the shareholders who have no other interest in the company besides obtaining a good profit.



If you have read and still here, I thank you for it. I just felt, I ought to share this with you.

Fritz Schulze

\*CTV News

\*\* Dr. Otto Schott (1851-1935) founded the Jena Glass Technological Laboratory, later the Jena Glass Works., together with Carl Zeiss and Ernst Abbe. He developed new types of glass that made most of Abbe's optical calculations possible. Schott handed over his share of the ownership of the Glass Works to the Foundation.

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Published in the January 2019 issue of *Micscape* magazine.

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