Barry H. Rosof

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Biographical Sketch

I have divided the topics normally included in one's resume into sections containing similar activities. Further I have outlined or omitted much of my career not related to the material covered on this website, but included enough material to give an idea of who I am.

Thermodynamic and Statistical Mechanics Activities
(with an emphasis on non-equilibrium phenomena)

Early Years, the macroscopic world

Sc.D. 1968, MIT, Department of Metallurgy, Thesis, A Theory of the Dynamical Behavior of Thermodynamic Systems.

Assistant Professor, MIT, 1968 – 1971, 1argely teaching metallurgical thermodynamics.

B H Rosof, Hamilton's principle and nonequilibrium thermodynamics, Physical Review A, 1268, 1971. Based on my Doctorate Thesis.

Barry H. Rosof, The Calculation of Pourbaix Diagrams using a modified linear programing technique, NBS SP-496, Application of Phase Diagrams in Metallurgy and Ceramics, 1977.

Retirement Years, the microscopic world

The papers on this website (rosof.com).

Early Education

BS in Metallurgy, MIT, 1963
MS in Metallurgy, MIT, 1964

The first part of my graduate studies was in Physical Metallurgy. I switched to Process Metallurgy for my Doctorate.

Intervening Years (Between MIT and Retirement)

I held jobs at several companies. My positions included a wide variety of management positions. Most are not listed here.

The position descriptions included:

Production
Marketing
Applied Research
P and L Responsibility
Corporate Development
General Manager
Intrapreneur
Entrepreneur

A particular strength I have is developing business plans, putting together proforma financial statements and bringing new products to market.

Industries I worked in include:

Specialty steelmaking
Steelmaking in general
Heat sinks for semiconductor packages
Powder (Metal) injection molding
Specialty powders for a variety of industries
Consulting engineering
Fertilizers
Satellites
Industrial gases delivered by pipeline

During this period, spanning three and a half decades, I became an expert in three metallurgical processes, received four patents (two with co-inventors) and co-authored several papers, mostly having to do with powders.

Some highlights:

At Sherritt Gordon (Fort Saskatchewan, AB, Canada) in the early '90's, I wore several hats, some simultaneously. Some of my assignments:

In Charge of the Metals Refinery (Sherritt was Canada's third largest nickel producer).

Negotiate a contract for the purchase and delivery by pipeline of tonnage quantities of hydrogen per day.

My favorite assignment, sketched out below, gives an idea of the scope of some of my work.

Around the time I took over Sherritt's Specialty Materials Division the senior technician assigned to the plant walked into my office. He held a vile containing a small amount of fine powder. He said, "I have a customer."
Sherritt's Specialty Materials Division produced a variety of nickel containing powders. Its biggest market was powders used in jet engines for an application analogous to piston rings in internal combustion engines.

We had no idea what use the customer had in mind, how much he was willing to pay, how many kilos he might purchase and most importantly, if he would remain interested after receiving trial quantities.

Producing the powder in commercial quantities presented its own challenges. The two most important were could we produce a consistent product (some of the technical staff elsewhere in the company had doubts) and could we do so at a reasonable cost. In addition, there was the challenge of scaling the laboratory process up to a commercial scale, with particular concern for one of the secondary unit processes.

The original customer was impressed with our product and wanted an exclusive. For a reason not related to the product he disappeared. (This is an interesting story not relevant here.) My salesman based in Europe was able to identify potential customers. To succeed we would have to take business away from another manufacturer who produced a not quite similar powder by another process. Using the equipment we had in hand, with few modifications, we were able to scale up the process and provide test quantities and then commercial quantities at cost to the European market.

I was then able to obtain $500,000 to refurbish some idle equipment, allowing us to increase the scale once again and create a profitable business. Within four years sales were over 15-million-dollars. During the fourth year, (at this point my main job was being in charge of the nickel refinery) my team put together a business plan for a new plant that would cost over 10-million-dollars. We received approval and work started on building the new plant. At this point I moved onto a new job. I was told several years later that this business had grown to over $100 million.

Several years later I became the Vice President and General Manager of a consulting engineering firm (CFER Technologies, Edmonton, AB, Canada) and retired after five years in that position.

Other

Treasurer of a sports organization, a music organization, a religious organization, a proposed senior's residence, a social service agency and a home-owners association. I was president of three of them.

Member of the Police Chief's Advisory Committee (Edmonton) on Police Community Affairs.

Chairman of the Process Technology Division of the Iron and Steel Society of the American Institute of Mining, Metallurgical and Petroleum Engineers.

Hobbies: Photography, travel and statistical mechanics.

Honors: Sigma Xi, Beta Gamma Sigma, John C. Vaaler Award

Nationality: USA and Canada

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