

November 16, 2017

# The \$43M Startup

Tale from the Industrial World



# The Spark



Pointe-Claire, Canada





Xujun Hua, PhD



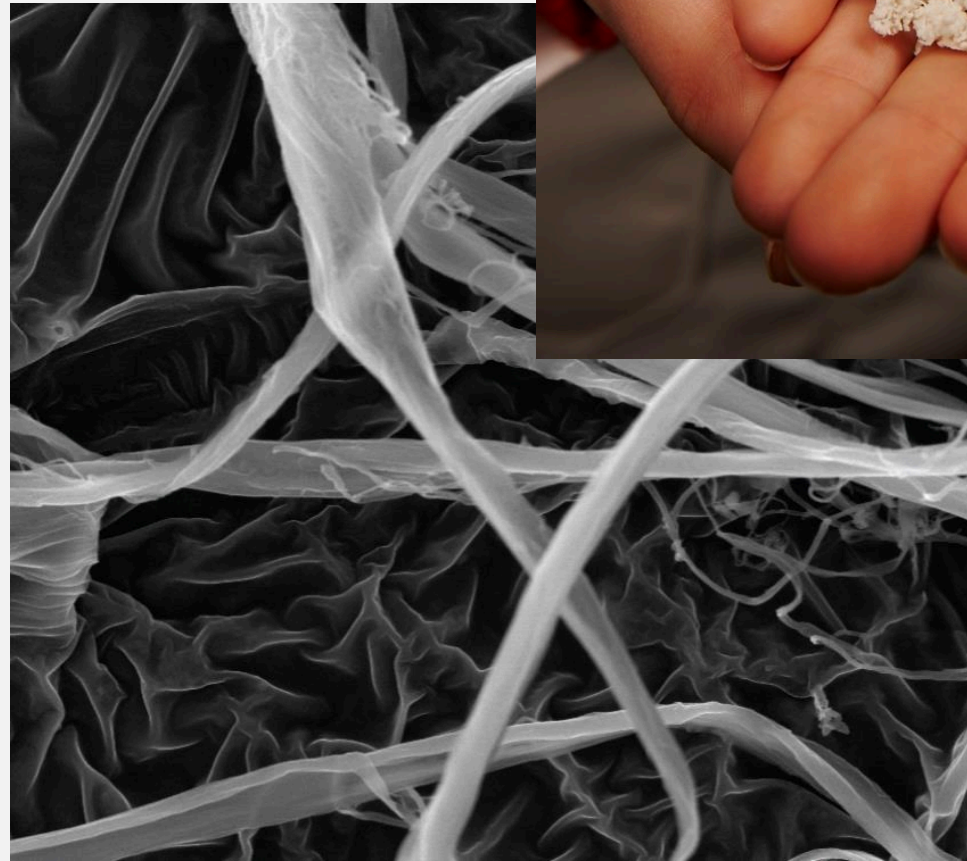
Performance enhancing additive

100% FSC® certified wood

Unique characteristics; light and strong

Enhances rheology

Multiple applications



# The Bet

## One man's vision

Use FiloCell to improve Kruger's own products and steady the new venture. From there, springboard into higher value applications.



Joseph II Kruger, Chairman & CEO

# A \$43M Endeavor

Scale-up the process, build a manufacturing facility and develop new applications.

In collaboration with **FPInnovations**





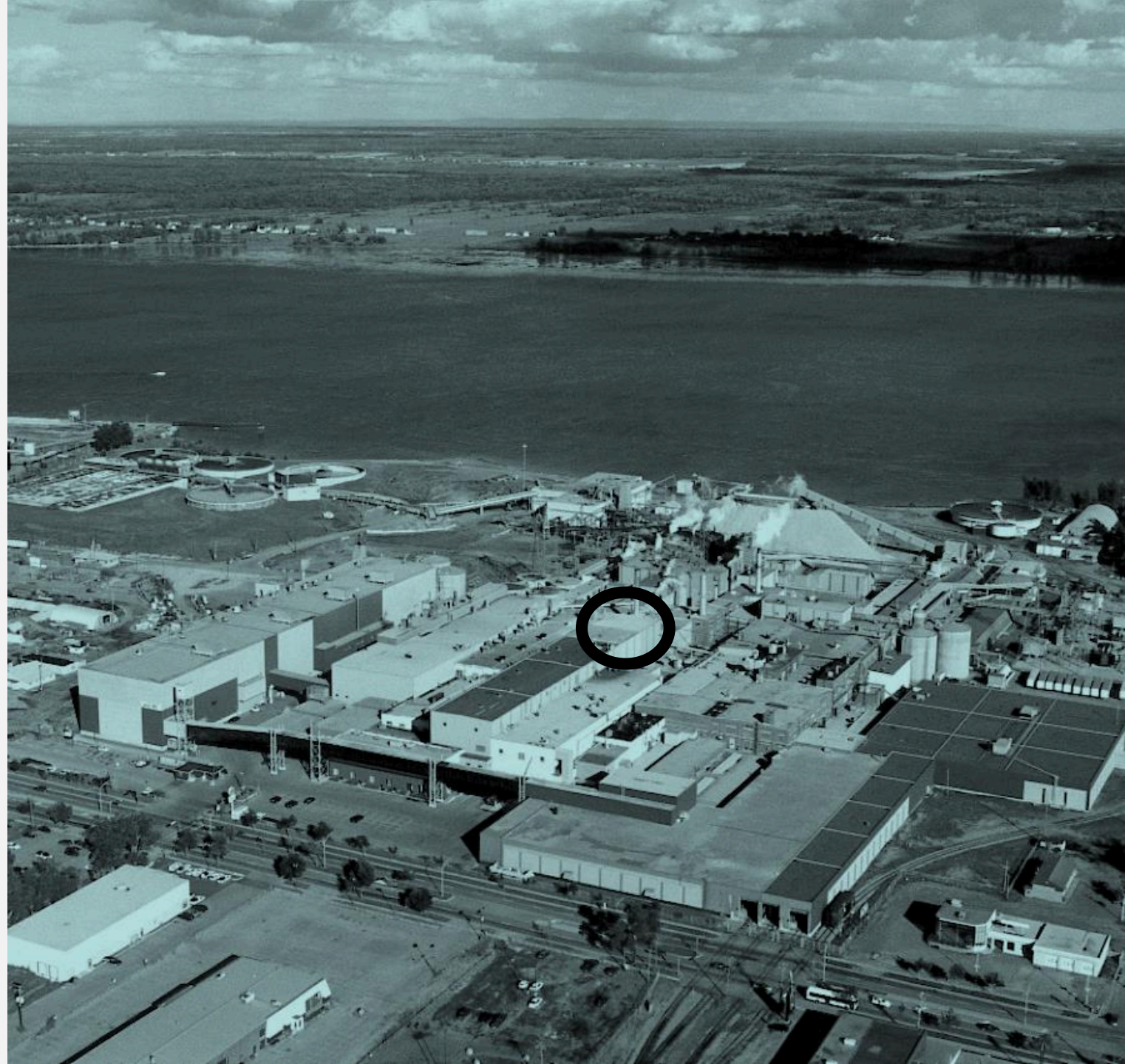
# A Unique Facility

In Trois-Rivières, Canada

Built within an existing paper mill

Started in June 2014

6,000 Tonnes/yr. capacity



# Collaborative R&D

Applications and process developed through external research partners (universities, educational & governmental labs, industrials, etc.)



# Priority Applications

Other applications include paints & coatings, adhesives & sealants, foams, elastomers, cosmetics, oil & gas extraction, etc.



Concrete & Mortars



Paper & Tissue



Plastic Composites

# The Valley of Death

## Life After the Project

Project and associated funding ended last year. Company now flies on its own and must grow and secure its future.



# Challenges & Lessons Learned

# Change Happens Slowly

We tend to overestimate short term gains but underestimate longer term ones.



# Build it and They Will Come... or Maybe Not

No product sells by itself. Significant and sustained commercialization efforts are needed.





## From Commodity to Value Added

FiloCell's value goes much beyond its weigh, therein lies an opportunity as much as a challenge. Kruger has always been about commodity products.



# Intellectual Property

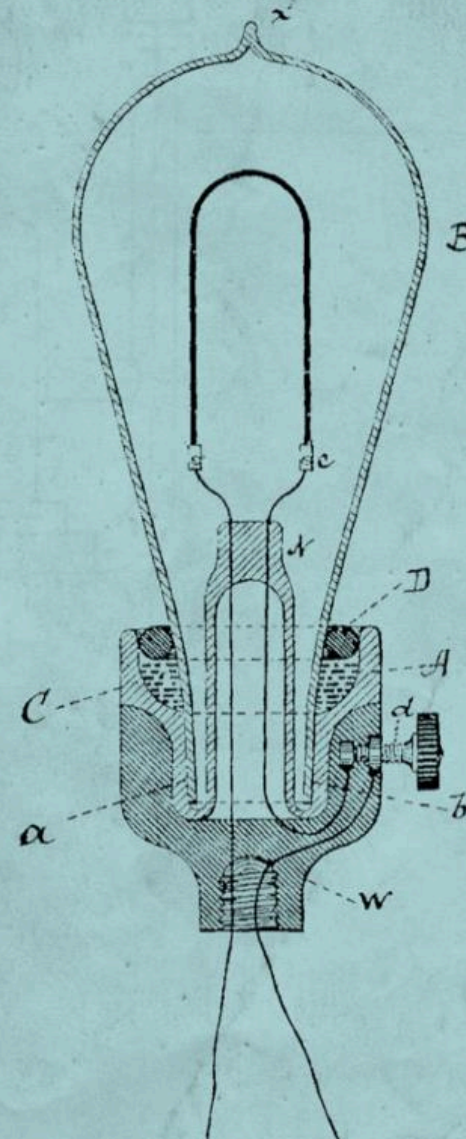
IP protection had never been a consideration beyond trademarks. Now it is a critical and strategic aspect of our business.

(No Model.)

T. A. EDISON.  
ELECTRIC LAMP.

No. 263,878.

Patented Sept. 5, 1882.





## Policies & Infrastructure

Striving to reach a compromise between our needs and the rules and processes of the parent company.



# All About Projects

"On budget, on schedule, on scope!"  
Kruger's staff usually drive projects, not open ended business ventures.



# Scattered Team

Until recently, team members used to be spread across multiple sites and office spaces. Hindered collaboration, speed of execution and culture development.



## Saying No is (really) Hard

FiloCell generates a lot of interest and its applications are almost endless. Focusing our limited resources is probably our biggest challenge.



For all these challenges,  
our business could not exist  
without the support and collaboration  
of our parent company  
and sister divisions.



Kruger Biomaterials is part of Kruger Inc., globally renowned manufacturer of paper, packaging, tissue products and a variety of other pulp and paper products made from raw and recycled fibers. A diversified and innovative company, Kruger Inc. is also a leading supplier of renewable energy and among the top paper recyclers in North America.



Joseph Kruger



Gene H. Kruger



Joseph II Kruger



Sarah & Gene Kruger

Founded in 1904 in Montréal, Canada

Privately-held, family company

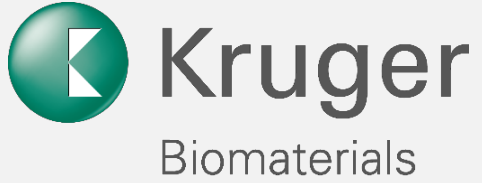
5,000+ employees

19 production facilities in Canada and the U.S.A.

35 renewable energy production sites

Driven by innovation





Nicolas Duplessis, P.Eng.

+1 514 343 3100 x12177  
nicolas.duplessis@kruger.com

[bio.kruger.com](http://bio.kruger.com)