



The Adventures of Meg A. Mole, Future Chemist



Dr. D. Steven Keller, Professor

In honor of this year's CCEW theme, "*Take Note: The Chemistry of Paper*," I traveled all the way to Oxford, Ohio to meet with Dr. D. Steven Keller, Professor at Miami University in the Department of Chemical, Paper, and Biomedical Engineering.

Dr. Keller explained to me that his job focuses on teaching college engineering students about paper. "I teach them where the raw materials come from, how pulp fibers are produced from wood, and how they are reformed to make all sorts of paper products used for writing, packaging, or for cleaning. I also study how the fibers in paper and nonwovens are arranged in the structure, and how the structure and chemistry affects end use properties," he explained.

Touring the laboratory was the best part of my visit! As I followed him through the lab, he showed me "specially designed instruments used to study the mechanical and optical properties of paper." I was very surprised to learn one fact about his lab equipment. He said, "I use instruments that are just like those used in hospitals like CAT scanners and X-ray machines, but much smaller and at lower energies to see the organic fibers."

I asked Dr. Keller about his interest in chemistry while growing up. He shared, "I always loved science and exploring, especially the countryside and forest. I also liked putting together model cars and airplanes. Bringing together the enjoyment of building and exploring nature to study new methods of analyzing materials and solving scientific problems is exciting and rewarding. My father was a chemist and a materials scientist who encouraged my siblings and me to look carefully at the natural world around us. We always had access to books and household resources to conduct simple experiments, like changing the color of flowers with food coloring, or making desktop volcanoes." So why did he decide to go into chemistry specifically? He told me, "I decided to go into science, and especially chemistry, since it is a challenging field that is so complex, yet allows one to make new and significant discoveries every day."

"So, what is the best thing about your job?" I asked. He said, "Working with enthusiastic students, excited about learning how technology and natural resources can be used to make everyone's life much better. Being a scientist means that you are confronted by different problems each day. Some problems are easily solved, others might take years. But there is great satisfaction when you solve a problem and share the discovery with others."

Word Search

Try to find the words listed below – they can be horizontal, vertical or diagonal, and read forward or backward!

Y	O	T	Y	G	G	D	P	B	Q	R	P	S	O	S
E	L	E	C	T	R	O	N	E	E	T	U	C	N	H
N	V	X	A	K	X	O	S	B	R	E	L	I	V	O
X	I	T	L	M	C	O	I	Q	Y	L	P	T	P	Y
H	R	N	U	T	L	F	Z	F	R	E	O	S	O	P
U	V	X	G	U	H	S	G	E	R	M	B	A	V	Y
M	J	B	L	I	L	K	D	F	U	E	S	L	V	L
Y	O	L	C	L	L	W	I	B	L	N	E	P	U	M
H	E	L	U	I	Z	S	P	Y	S	T	V	O	V	F
C	Q	N	E	M	F	L	A	J	D	W	G	I	E	K
A	G	T	A	C	A	B	V	P	Y	D	I	B	I	T
H	T	O	S	S	U	E	H	A	G	H	Z	Z	I	E
G	R	O	T	C	T	L	R	E	M	Y	L	O	P	J
A	H	I	M	P	A	P	E	R	Y	R	X	Q	B	E
Y	C	B	M	Y	X	Q	M	D	B	H	K	T	D	G

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|-------------|----------|---------|
| ATOM | ELEMENT | PLASTIC |
| BIOPLASTICS | FIBER | POLYMER |
| CELLULOSE | LIGNIN | PULP |
| ELECTRON | MOLECULE | SLURRY |
| | PAPER | |

Personal Profile

- **Birthday:** July 15
- **Do you have a hobby?** Well, I still make scale models, but now I use wood and metals to make scratch built ship models.
- **Can you tell me about your family?** I have a wonderful wife Kathy, a son Steven who is married to Rebecca, and two wonderful grandchildren, Allison and David (ages 5 and 1).