May 11, 2016 Meeting

The May, 2016 Waterloo Technical Society (WTS) meeting was called to order by President Gary Dorhout at 7:15 pm.

A total of 51 were in attendance.

Treasurer's Reports. Ken Friend reported the treasury had a beginning balance of $868.17 with no income and expenses of April's speaker's dinner of $18 leaving a balance of $850.17. A total of 9 honorary and 62 paid members gave a membership roster of 71 members.

Election of Officers. The slate for WTS 2016-2017 Officers was presented by President Dorhout.

President:	Gary Dorhout
Co-Vice Presidents:	Jerry Mohling & James Stevenson
Treasurer:	Kenneth Friend & Paul Anderson
Dinner Reservations:	Derek Eagles & Steve Lang
Secretary:	James Stevenson
Publicity/Recognition:	Open
Auditing:	Bill Mitchell & Jim Garrett
Nominating Committee:	Open
Web Site:	Tim Schoenfelder

Bob Dietrich moved, Reno Rodeghiero seconded, that the slate be elected as presented. The motion carried unanimously.

Recognition. Paul G. Anderson was recognized as an 8 over 80 citizen of the Cedar Valley that was recently announced in the Courier. Paul, 84, will be honored for his volunteer work with the United Cerebral Palsy Association, AARP/RSVP tax preparation program, and his work with ARC of Cedar Valley at a luncheon on June 23, 2016 at the Parkplace Event Center,1521 Technology Parkway, Cedar Falls. Reservations are required and must be made by June 7. Ticket price is $20 each.

Old Business. President Dorhout requested topics and speakers for the next year's meetings. The topics and speakers for our fall meetings are:

14 Sep 2016 – Dr. Donald Gurnett U of Iowa -- Voyager Spacecraft
12 Oct 2016 - Cody Wilkinson – Air Seeding and Small Grains
9 Nov 2016 – Tom Nagle – Technology of Signs
TBD Brian Keierleber, County Engineer, Independence – Ultra High Performance Concrete Properties-Tim
TBD Joe Owen -- Current Concrete Road Paving Techniques – Steve Crouse
TBD Mr. Gomes, Waverly -- Using Ultralight Aircraft for Crop Inspections-Tim
TBD Robert Levis, WCF&N Railroad -- History of railroads in Waterloo and Cedar Falls– Gene Van Gorder

If anyone knows someone who could speak to a topic related to technology please let President Dorhout know.

New Business. No new business was discussed.

Guest Speakers. Mr. John Burnett, president of Cedar Valley Makers, introduced the three speakers on the topic of Open Source Printing of Three Dimensional (3-D) Prosthetic Hands.

Mr. Bruce Newell, Blackhawk Engineering, has used his personal 3-D printer and software available on the internet to print prosthetic hands for people around the globe. His service is done as a no-cost volunteer to provide for those in need. His work is part of project eNabling the Future and examples can be seen at www.enablingthefuture.org. The hands require from 12 to 18 hours of printing time. At first the hands were shaped from hardened plastic, but now he has models with a skeleton having a flexible covering (simulating skin) to provide a more realistic prosthetic. Mr Newell had many completed hands of different sizes to pass around for audience review. Muscles in the wrist are used to move the hand and fingers. Many recipients have some sort of palm but generally no fingers to grasp or gather an object.

Brothers Neal and Peter Muzzy acquired a 3-D printer and began to use software to print hands. It wasn't long before the pair wanted to modify the prosthetic hand, but the software was not open source, it could not be modified under the license agreement which allowed printing but not modifying the file contents. Neal and Peter, tool designers at Schoitz Engineering, decided they could create their own prosthetic software and provide it to others as open source. Many trials and another 3-D printer later, they arrived at a skeleton design that could be controlled with wires and servo motors through muscles in the forearm or upper arm. With developmental assistance from Taylor Morris, a quadruple amputee as a result of an explosion in Afghanistan, the Muzzy brothers were able to incorporate a laser pointer in the index finger and servo controls in the upper arm. A digit could also become a knife, but the safety concerns curtailed its development. A skeleton with silicone outer membrane is now near completion and ready to be released as the first open source 3-D prosthetic hand. Tactile feedback and individual digit control are the next refinements the brothers wish to complete.

Next Meeting. Our September 14, 2016 meeting features Dr. Donald Gurnett, professor of physics at the University of Iowa, explaining his experiences with the Voyager Spacecraft

Meeting adjourned at 8:40 pm.

Respectfully submitted,

James R. Stevenson, Vice President and Secretary