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Dear Friend :

I hope that your holiday season went well and you had a very Merry Christmas and Happy New Year. I am sorry for not being able to send you my holiday greetings on time but I still want to wish you all the best in this new 2009 year.

As usual, it has been a busy semester in the McMurry Physics Department and we had a number of important events this fall.

This was the first semester for our newest department member, Dr. Timothy Renfro, and we are very glad to have him here. As I mentioned before, we were especially pleased that Dr. Renfro's background is in the area of experimental physics. This turned out to be very important, while Dr. Renfro along with Dr. Keith were assisting David Upshaw, our only graduating senior this year, in his work on the senior research project.

David had a very ambitious idea of building a working model of the jet engine and keeping this project at affordable costs and reasonable time-frame to be performed by one student in the small workshop of the McMurry Physics Department. He has only used the equipment and materials, which were either available at the site or donated by various people. Only very few of the engine parts were purchased by the department at very reasonable price. David, as well as Drs. Keith and Renfro have spent the enormous amount of their own time trying to figure out how to make this project work. Their efforts were rewarded by successfully conducted field-tests of the engine. The picture below shows the engine in operation with additional ram-air being supplied by a leaf blower.

Even though the engine was not able to stay in a stable working mode for long periods of time due to insufficient airflow from the leaf blower, it has been a definite success showing that such a thing as jet engine built out of scrap materials is even possible. It now belongs to the

Physics Department and the future generations of physics students will have a chance to further improve its design and perhaps even use it to propel a small vehicle about the size of the golf cart.

I would like to use this chance to once aging congratulate David on successful completion of his project, welcome him into McMurry Physics alumni and wish him all the best in his future career. Inspired by the success of his project, David decided not to go into graduate school right after his graduation in December, but to look for various job opportunities in industry. He is currently considered for several positions and we wish him all the best in his future endeavors.

You probably remember that this fall was very special for us, since we have celebrated the 50th anniversary of the McMurry Physics Department. We have started this celebration by continuing the series of talks given by the alumni on the subject "What I have done with my physics degree". I was very pleased that so many of you have found it possible to participate in this series during the fall and I would like to thank you once again on behalf of our students and faculty.

On September 24th we had Dr. Glenn Light, who was talking to our students about nondestructive evaluation (NDE) and nondestructive testing (NDT). These processes include a wide range of practical sensor technologies based on ultrasonics, eddy current, magnetic flux leakage, x-ray, optical, and others. NDE/NDT is used in many industries such as petrochemical, power, aircraft, space and other industries. The presentation lasted for about 45 minutes and caused a lot of interest from students and faculty, including the McMurry president, Dr. John Russell, whose own area of expertise is also related to that subject.

On September 29th we had Dr. Charles Curb, who was talking about the history of the early photography in the 19th century. Dr. Curb has also demonstrated examples of daguerreotype, the ambrotype, the tintype, the stereograph, various photo albums, cases and frames. The presentation lased for about 45 minutes and caused a lot of interest not just from science student and faculty, but also representatives from theatre and psychology departments.

On October 23d we had, Mr. Bob Seago, who spent most of his career working in the engineering labs at Bell Helicopter, where his area of expertise was advanced composites (fiberglass/epoxy, kevlar/epoxy, and graphite/epoxy) and primarily with aircraft structures. He also worked on the V-22 Osprey program, which is an all composite airframe aircraft. Mr. Seago talked to our students about his life of service and how his physics degree had helped him on this path.

But the main event of this anniversary year took place on October 24th during the Homecoming weekend, when we had our special luncheon to celebrate the Physics Department Birthday. I am very grateful to all of you who were able to make it there. Even though we did not have a huge crowd of alumni, but every generation was presented. From the very first graduation of 1960 (even before the physics major was fully established) we got Gerald Smith and Dr. Girvin Harkins. Dr. Harkins made a very inspiring speech about Dr. Bottom and the first generation of Physics students in McMurry. Gerald Smith has discovered that he did not sign our Sigma Pi Sigma book, since he could not make it to his induction ceremony 50 years ago, so he signed it with a 50 years delay. From the early generation, we also had 1963 graduate Bob Seago, who made a presentation for our students a day before the homecoming. He also identified some people from our old department photo pictures (including himself). From the 1970s, we had Dr. Glenn Light, Melvin Griffin and Dick Richardson. And finally from the recent graduates Kirk McGinty and Chris Cumby were there. Chris is still in Tech and he is doing very well and not very far from getting his MS degree. As you probably remember, in preparation to this event I asked you to send me your stories about the thing you remember most about being in our department. Many of you have replied to my request and I am very grateful for that. As I promised, I am going to use these stories in writing of the History of McMurry Physics Department. Those of you who were at our meeting during the homecoming already heard about some of the things, I was able to learn and put together. Unfortunately it took me much longer than I originally expected to work on this project, besides I was not able to get any funds to hire some students to help me on it, so my original intention to have everything published on our web site this year did not work. However, I am going to continue working in this direction and will publish these materials as soon as I will have a sufficient time to complete this project or some parts of it. If you have not wrote to me yet about your most memorable moments while you were

a student in our department, it is not too late to do so and I sincerely appreciate contributions from all of you. Also if you are a recent graduate, please let me know what things about our program you have found most useful when you got to graduate school or the work place and what things you were lacking, so that we will know what needs to be changed in our program to make it work better.

Our last large event of the fall semester was the tour of Lockheed Martin Facility in Fort Worth, which took place on November 7th. Thirteen students and all physics faculty went to visit the Lockheed Martin Aeronautics Company and see physics and engineering in action. We began with a golf-cart tour of the huge and historic main assembly building. Inside, we toured the assembly lines of the F-16 Fighting Falcon, the F-22 Raptor, and the F-35 Lightning II. Production of the three variations of the new F-35 is just starting to ramp up, we saw a lot of work being done on the assembly jigs themselves, along with the partly-completed first two production aircraft in the Air Force (conventional takeoff and landing) variation. The same assembly line will also be used for the Navy's carrier landing variation and the Marine Corps/Royal Air Force's STOVL (Short Takeoff Vertical Landing) variation. Next, we took a bus over to the Flight Simulator Lab. This lab contains a variety of flight simulators, from some that look like high-end video games to others that ride atop massive hydraulics. Others actually control a room full of actuators to get as much real aircraft hardware in the loop as possible. Next, we visited the F-35 Structural Test Lab. We got to climb up onto the test fixture containing an F-35 test article that was connected to a variety of hydraulic rams designed to push and pull on the airframe in order to simulate stresses during flight. We also saw additional F-35 structural testing hardware and a partly-completed flight test aircraft, along with the older F-16 testing fixtures and a UAE F-16 that had just completed some tests. Our next stop was the Flight Test Facility where we visited the Flight Test Instrumentation Shop, the Strain Gauge Lab, and the Mission Control room where the flight testing is monitored. Finally, we went to the Flight Test Mod hangar where four Pakistani F-16's were being refitted. These were never delivered to Pakistan due to an embargo and have been used as chase planes until recently. We got to go up and look into the stripped-down airframe and could even see the original General Dynamics ID plate in the cockpit area stating that the plane was originally built in 1984. Later in the day, Lockheed treated students and faculty to a Bar-B-Que dinner. The McMurry chapter of Society of Physics Students and the Department of Physics would like to thank Dick Richardson, McMurry University Alumni (class of 1971), and Lockheed Martin Aeronautics Company for hosting the tour.

Once again, I would like to thank all of you who have participated in the many wonderful activities during this anniversary year and encourage you over and over again, whenever you happen to be in Abilene, to please stop by the department and talk to us about new and exciting things happening to you. I would like to note that the older generation of our alumni was and is somewhat more active than our younger generation. Please do not think that if you have graduated just a year or two ago, you do not have anything to say yet. It is not so at all, and our students especially want to hear about the recent experiences of post-college careers in physics and physics-related fields.

As usual, I would also like to ask you that if you see or hear about somebody who is interested in physics and can potentially become a student, please let this person know about your experience at McMurry and feel free to give him/her our contact information and invite to visit us online at http://www.mcm.edu/newsite/web/academics/ncs/physics/index.htm. We try to keep our web site constantly updated.

If you have been recently added to our database and never received this letter before and/or by some reason want to be removed from the list and/or prefer to update your contact information and/or prefer to receive the electronic instead of the paper copy of this letter, please do not hesitate to contact me at the address above or by email at tbykov@mcm.edu.

Tikhon Bykov – Wayne Keith-Timothy Renfro, The McMurry Physics Department