News Letter of the Retirees' School Volunteer Association, Incorporated

2009 RSVA *Newsletter*

September 2009 **Number 15**

RSVA President's Message 2008/2009 School Year And Invitation to Annual Meeting

Retirees' School Volunteer Association (RSVA) members are passionate about enhancing Science Technology Engineering and Mathematics (STEM) education. It's an imperative we do so. As reported in the June 13th edition of the Economist, "A recent report from McKinsey, a management consultancy, argues that the lagging performance by the country's school pupils, particularly its poor and minority children has wreaked more devastation on the economy than the current recession." In Massachusetts, the "education governor" Duval Patrick has submitted proposals to overhaul the state's education system. More recently, Mayor Menino has submitted legislation to turn Boston's worst performing schools into charters. President Obama and Education Secretary Duncan announced that states leading the way on school reform will be eligible to compete for $4.35 billion in Race to the Top grants to support education reform innovation in classrooms. Obstacles to improving schools include parent resistance and teacher unions worried about the erosion of bargaining rights, fairness of implementing merit pay and preserving tenure.

Education focused and experienced retirees, particularly those retired from STEM careers, are a vital link in helping students and teachers through partnerships in school curriculum guidance, in the classroom or in after school activities. They are valuable contributors to the education process because they can clearly articulate scientific principles, bring unique demonstrations and experiments into the classroom and bring practical experience to bear on the subject matter. There are never enough volunteers to work with students and to encourage their interest in science and technology careers. Students are most appreciative, and the experience is fun and rewarding. We invite you to join RSVA at its annual meeting on Wednesday, October 14th 2009 to learn more about what we do and our impact on Massachusetts' schools. The meeting runs from 2 to 4 PM followed by a social hour with refreshments from 4 to 5 PM. The meeting is at Raytheon Global Headquarters, 870 Winter Street in Waltham, Massachusetts.

We have invited several leaders in education including Dr. Stephen Schiffman, a senior partner at Olin College and Associate Professor of Entrepreneurship at Olin and Babson Colleges to deliver the keynote address, as well as Greg Sheldon an organizer of the MA STEM Conference who will give us a preview of this years STEM Summit VI conference. Raytheon's Keith Peden, Vice President of Human Resources will give the Raytheon Corporate welcome. Richard Comeau, a Lexington Middle School Science, teacher will give a presentation on an after school activity using hydrogen fuel cells for vehicle propulsion. Dr. Bruce Ward from the Harvard College Observatory will update us (to be confirmed) on his recent win of a National Science Foundation (NSF) grant for an after school program. Marty Schecter will review the Robotics activities at the Holliston High School and how the students have been introduced to the engineering design process.

Volunteering is easy. Training is available through Northeastern University's RE-SEED (Retirees Enhancing Science & Engineering through Experiments & Demonstrations) program (http://www.bostonreseedcenter.org). Our members are helpful in getting new volunteers started by working with a more experienced volunteer. We frequently work in pairs and usually with a lead teacher coordinator. We aid teachers with classroom instruction, help with labs and demos, tutor, mentor after school science and math clubs, participate in curriculum development, and work on various committees in the education community. Please visit our web site www.rsva.org, and to learn more about the specific activities of our members see the town captain reports in this newsletter.

Again this year we have accumulated over 4000 volunteer hours and have impacted over 1000 students. We welcome a new volunteer, Frank Elms from Holliston.

I'd like to thank Rod Girard for ably leading RSVA for several years. In my short tenure as RSVA president it's obvious that there is a lot of work to be done and we need your involvement. Please come and join us at our Annual Meeting, and learn how you can enhance your retirement, and help our young people enjoy and be better prepared to excel in their math and science education!

Mike Adler

RSVA President

Note: If you plan to attend the RSVA Annual Meeting you must RSVP to Mike Adler, via e-mail at adlermf@verizon.net. You will find directions to Raytheon at end of this newsletter.

Town Captains Report

The following reports from the town captains highlight the activities of RSVA members during the school year 2008-2009.

Bolton - Bill Cridland reports:

Nashoba Regional High School encompasses the towns of Bolton, Stow and Lancaster. Over a thousand students attend this school. I teach either C or C++ computer Languages and have now been at the high school for over ten years. The school supplies space, two computers, textbooks and support to further the education of the Nashoba students, and also supports the annual First Robotics Competition Language section. In 2009, Nashoba did not fare well at the regional First Robotics Competition as they unfortunately experienced equipment failure, and attempts to get the robot working again compounded their problem. Sometimes we learn more from failure than from our successes. One of the C++ language students is taught via email since he has a no personal contact ailment. **Richard Perry,** another RSVA volunteer, teaches and continues to support the business class.

Framingham/Natick - Gerry Brody reports:

We sorrowfully mourn the loss of **Barry Altschul** who passed away during the year. He will be sorely missed.

Eight volunteers worked in the Framingham and Natick Public schools for the 2008/2009 school year; six at two elementary and the three middle schools in Framingham and two in a Natick middle school. A ninth volunteer was a judge for the second year at the annual Fay School "Rube Goldberg" competition. And a tenth was a mentor for the Mazie Foundation Program at Framingham High School. They volunteered about 1000 hours of service to more than 300 students. We also participated in the MetroWest Regional Mathcounts competition along with other active and retired Raytheonites (see picture).

At the Mathcounts competition Mel Weinzimer is at far left and Gerry Brody and Rod Girard at far right.

Gerry Brody worked at Fuller Middle School for the tenth consecutive year. As in past years, he worked in the Title 1 math "help" classes for eight 6th, 7th, and 8th grade students with Math Specialist Barbara Rappaport and he worked with students needing more personal help in a 6th grade and an 8th grade class. He also worked at Cameron Middle School with Math Specialist Bill Paquette, where he supported the "Extra Learning Time" SSR classes, the Math Club and the MATHCOUNTS team. He also was a scorer at the MetroWest regional MATHCOUNTS competition along with **Ron Evett** and **Mel Weinzimer**. He was a judge/reviewer at the second annual Jr. FIRST LEGO League Expo where 41 teams participated, mostly from the Framingham Elementary schools. **Gerry, Ron Evett, Mike Adler and Joel Winett** were judges at the Waltham "Focus on Math" competition for students from the two Middle Schools and the High School.

Karl Kelber reported, "This was the first year of meeting with 5th graders. I used the same advanced material as I did with the 4th graders last year and it was even more appreciated. Based on the feedback from the students only minor modifications were required. I met with a group of five and a group of four for a half hour each per week. I plan on returning next year to repeat the effort."

Gene Brundage continued his Math tutoring at Barbieri Elementary School in Framingham**.** He tutored 6 students. One of the boys has been with him for three years and was studying pre-algebra. He was

invited back for next year. **Malcom Greene** was a judge for the Rube Goldberg contest at the Fay School in Southboro for the second year.

During the 2008-2009 school year, **Dick Pabst** worked with the two 8th grade classes (taught by Kelly Marino and Peter Manna) at the Kennedy Middle School in Natick. He assisted and augmented material presentation, worked with students during classroom exercises and practice, and provided after-school assistance before tests.

Dick anticipates continued work with 8th graders in 2009-2010.

Sorin Rosenberg reported, "During this year I worked at Cameron Middle School in Framingham with students of Mrs. Goldberg's and Mrs. Harrington's 6th grade classes, with 2-3 students at a time and I worked one-on-one with two students. During SSR hours with Bill Paquette I helped the students resolve the problems given to them.

I have enjoyed working at Cameron, and I am looking forward to the next year when I intend to extend my activity to the 7th and 8th, if possible."

Ed Uftring reported, "I started out the year in mid September and continued until June 12. During those months I worked again with Phil Reitz at Fuller Middle School. This included 6th graders and their Mouse Trap Cars, 7th graders and their Rube Goldberg Contraptions and 8th graders and their Robotic creations. As usual it was very rewarding working with these youngsters and reminding them that it was O.K. to make mistakes and modify whatever they were building. As we all know from our own experiences, redesign is part of the process.

This last week was especially rewarding because we were finally able to find the time in the schedule for me to present a lesson on Magnetism and Magnetic Levitation to two 6th grade classes. I described magnetism to them briefly because they had studied it in 4th grade. I demonstrated what a magnetic field looked like by covering a magnet with a piece of clear plastic, which was sitting on top of an overhead projector and projecting the image on a screen. I then sprinkled iron filings over the magnet and tapped the glass so they could see the filings align along the magnetic field. I think they were all surprised to see the results.

Following this I showed them on the screen a cross-section of the Mag Lev test bed that I had made up. I also included a cross-section of a Mag Lev sled to show how they should both align. Then we took the class over to the test bed with the sleds in place. I had tried to arrange to have a sail, just like a miniature sailboat, attached to a sled and blow air at it hoping to move the sled down the test bed. This did not work because the sled was not wide enough and it kept tipping. I also tried the same thing using a propeller with the same results. However, the sleds, all by themselves in the track, moved with ease. The kids were surprised how the sleds stayed suspended above the surface and smoothly bounced when gently pushed down. That wraps it up for this year and now back for that redesign."

Ron Evett continues to be involved with the Mazie Foundation's one-on-one mentoring program. He was matched with a new mentee in November and will work with him through his graduation in June 2011. Ron also tutored in math and science when the Foundation identified students wanting extra help. Ron additionally worked as a reviewer at the Junior FLL Expo in Framingham in January, an event that has grown considerably in its second year. He also served as a reviewer in Waltham for the FoM middle and high school math fairs.

Mel Weinzimer reports that 2008/2009 was his 3rd year assisting teacher Patrick Kelcourse and advising his team at the Walsh Middle School Math club. They compete with other math clubs in the region as part of the Intermediate Math League of Eastern Massachusetts (IMLEM). The Walsh team placed first in their division for the third year in a row. Mel also served as a volunteer scorer at the MetroWest regional MATHCOUNTS competition held at Walsh Middle School in Framingham. The Walsh team was one of 29 schools that competed. (See picture above)

Mel served as a judge/reviewer at the MetroWest Jr. FIRST LEGO League (FLL) Expo held at the Fuller Middle School in Framingham where he helped judge teams of elementary school students who worked on specific projects. This year's topic was climate. The students were asked to learn about climate, how it differs from weather and how it is measured and evaluated. Teams then selected an aspect of their learning to build a model using LEGO parts, and summarized their work on a display board that was presented at the Expo.

Mel also served as a judge/coach at the MetroWest Jewish Day School's 3rd annual Science

Fair. Mel reviewed the work of individual students who worked on specific projects of their interest.

Mel is planning to continue the above volunteer activities for the 2009/2010 school year.

Tom Toomey volunteered at Natick's Kennedy Middle School: "My efforts were to mentor and provide a technical resource for programming and robot building, then assist with team competition strategy and rule interpretation. The Robotic Club has 40 students that meet once a week from September through May. The Robotic Team has 15 members that meet two or three times a week from September through February. The team entered three competitions during the school year."

Hopedale - Allan Kent:
Allen continued to assist Ms. Sandy D'Amico's four sections of 7th grade science classes one day per week. He gave short lectures on various subjects and occasionally assisted in high school science classes.

Hopkinton/Ashland/Holliston - Rod Girard reports:
Hopkinton: This year we continued with EUREKA, the after school science club for 6th grade students in Hopkinton. We had about 45 students, a number sufficient for 2 science clubs, but we ran it as one club since we had 2 teachers and 3 volunteers. **Bill Howard** and **Joanne Grant** are the 6th grade science teachers involved, along with RSVA volunteers **Rod Girard, Bill Greene,** and **Marty Schecter.** Students work in teams of 2 or 3 to build a specific functioning project of their own design, and have a competition at the end of the project time. This year we did about five projects, ranging from simple ones like Das Boat, where they design boats from aluminum foil sheets and load them with marbles until they sink, to more complicated ones like electronic game boards and land yachts. The last project of the year was Water Bottle Rockets. The students make these from 2-liter plastic soda bottles and design and attach the nose cone and fins. They are powered by compressed air supplied via a floor model bicycle pump, and the rockets are partially filled with water to slow down the release of the air pressure to give the rocket some sustainable thrust. Some of the designs attain heights of about 200-250 feet. This is always a great fun project to end the year, with the outdoor activity a good energy release for 45 sixth graders. The students learn about the engineering process, i.e., teamwork, contributing ideas, taking data, interpreting results, analyzing failures, reworking to correct problems, and also learn some scientific principles. As a bonus they also learn that science can be a lot of fun.

Holliston: There are now three RSVA volunteers from Holliston, **Frank Elms, Ron Evett,** and **Marty Schecter.** Ron Evett volunteers in Framingham and his activities are summarized there.

Frank Elms has been working with the Veterans Homeless Shelter in Boston, the President's staff at Massasoit Community College, and Senator Kennedy's staff on an education support program for returning Iraq War vets. There will be initial pilot test sites in the inner cities of Brockton and Canton. The plan is to eventually involve all Massachusetts Community Colleges and some high schools, utilizing a subset of the high schools college prep curriculums.

Marty Schecter mentors the EUREKA club in Hopkinton, and is involved in a Robotics Club at Holliston High School and the Capstone Program at Northeastern University. He served as an after school mentor for the Robotics Club to teach utilization of engineering processes in building a robot to be used in the First Robotics Competitions (FRC). The Team had previously finished in the bottom half of the competition and was weak in software implementation. Working with Mr. Roger Hering, a first year instructor, the team finished in the 50th percentile in the Boston Regional Competition and 7th in 16 teams in the FRC Battle Cry competition at WPI.

There were 15 students on the Team, most of who will be back for next year's competition. The goal for next year is the top 10%.

In the Capstone Program, Marty served as a judge for 15 projects developed under this program run by the Mechanical and Industrial Department of NEU. This one-day activity consisted of reading the project abstracts, listening to presentations by each team, and along with other judges, evaluating the projects and picking a winner. Approximately 75 senior students participated in these projects, which also had corporate and research laboratory sponsorship.

Ashland: **Rob Moolenbeek** from Ashland and **Bill Greene** from Milford have been running an after school LEGO Robotics club at the Ashland Middle School. The club had 13 students and used the LEGO Mindstorm NXT robotics kits. They started with projects that provided guidance in building and programming simple Robots. They progressed to building robots to do other challenges such as line tracking, maze solving, and disabling the opponent BOT in a one on one match. The Ashland students also attended BOTFest at UMass Lowell. This provided an opportunity for the students to observe other robots, as well as demonstrate their robots in action, allowing them to compare what they did vs. other Middle School students.

Rob and Bill with their kids and science teacher Geralyn Anagnostaras.

Lawrence – Jim Ross reports:

I haven't been in the classroom this year; however my 35 "Fun with Science, Engineering and Technology" videos have been shown regularly on the Lawrence Educational channel throughout the year. The show is usually scheduled to run three times a day for the first three days of the week. It is difficult to estimate how many students are influenced by the shows. Based on "back-of-the envelope" calculations that consider Lawrence's population, the number of cable subscribers and students and assuming only 10% of students in grades 6 through 12 who have access to the shows actually watch them, a conservative guess might be that over 600 students have seen some of the shows.

It is interesting to note that all the comments that I receive about the show are from adults, who seem to enjoy it.

These videos may also be borrowed from RSVA.

Lexington/Boston - Mike Adler reports:

I continue to assist in the science classroom one day a week at the James P. Timilty Middle School in Roxbury. This past year I worked with Ms Stitzer's 6th grade classes. Although not members of RSVA, there are four other RE-SEED trained retirees at the school assisting in other classrooms.

The 6th grade curriculum included human body systems, earth science including weather, the water cycle, and the seasons. I helped with class instruction, assisted students with lab investigations, and mentored individuals. I also performed additional demonstrations to amplify principles covered such as mass and density. I drew an ellipse on the board using a string held fast at each end representing the two foci. The planets travel around the sun in an ellipse with the sun at one of the foci. It's a great way to demonstrate nearest and furthest approach from the sun as well as the seasons. I helped students with their science fair projects. Again I judged at the Timilty School's science fair and again at the citywide Boston science fair competition. In addition, I reviewed Math Fair projects at the Clark Avenue Middle School in Chelsea and at Waltham Math Fair. Next year I will probably move on to the seventh grade and see many of the same students. It's fun to watch their development over the years.

I also evaluated a proposal for Teach Engineering (http://www.teachengineering.org) a curricular unit aimed at 7th graders on laser light properties. The unit was a finalist 2009 Premier Curriculum Award for K-12 Engineering.

Charlie Martin and I continue as members of the Lexington K-12 Science and Technology/Engineering (STE) Curriculum Review Committee with the aim of

providing curriculum recommendations based on National and Commonwealth of Massachusetts STE Frameworks and the introduction of STE MCAS testing. We participated in several all day working sessions. In June the two-year accomplishments report with proposed curriculum recommendations was presented to the Superintendent, Dr. Ash and the Lexington School Committee.

Marlborough - Report from Mort Levin:
My involvement during the school year 2008-2009 was with the 6th grade. 6th graders met on Tuesday and 7th graders met on Thursday. We covered the same material during the first and second semesters because of different student bodies. The focus was on understanding potential energy and its conversion to kinetic energy. Other concepts were brought in as the experiments progressed. □ □Pendulum - Potential energy is stored when the pendulum weight is raised. When released, this energy is converted to kinetic energy. Pendulums were provided to groups of students. The experiments showed that the period of the pendulum was independent of weight and varied with length - longer with longer lengths. Ballistic pendulum - In this experiment, kinetic energy was changed to potential energy. This allowed the measurement of the initial velocity of a "cannon ball" to be made. The "cannon" was a spring-loaded cylinder that "shot" a ball bearing into a catcher. The velocity was determined from the weights of the "cannon" ball and catcher and the height of the swing of the ballistic pendulum. The students, from a graph, determined velocity as a function of three different spring forces. □ □Ramp - A car rolled down a ramp. Potential energy was the weight of the car times the height of the ramp. Kinetic energy was calculated from the weight of the car, the length of the ramp and the time. Time was determined with the aid of an electronic timer. The potential and kinetic energies were determined for different ramp heights. The potential energy was supposed to equal the kinetic energy but never did. Discussion brought out the energy loss due to friction. □Roller coaster - A toy roller coaster and a marble were used. Why did the marble not fall from the top of the roller coaster loop? The potential energy at the top of the roller coaster was changed to kinetic energy at the entrance to the loop. The resulting velocity created a centrifugal force that kept the marble at the top of the loop. Each student swung a glass of water in a loop and observed that no water spilled. By feeling the pull as the glass swung around, they could understand why the marble did not fall.

Report from Tom Gluszczak□

Tom Gluszczak continued volunteering in Mr. White's Tech Ed classes. These 7th Grade classes build and race CO2 cartridge-powered cars. Using data taken by the students of the weight of the cars as well as their aerodynamic drag, graphs were made showing their impact on the speed of the cars. In addition, the effect of cartridge temperature was measured using snow and warm water to create temperature "extremes".

In addition, Tom volunteered in a math class using a pendulum to demonstrate how graphs can be used to both extrapolate and interpolate date.

Sudbury - Milton Jones reports:
Science Olympiad (SO) is an annual state-level interscholastic competition designed to increase student interest and enthusiasm in science in middle schools. The SO has 20-25 individual and team events that cover Technology and Engineering, Earth and Space Science, Physical Science and Chemistry, Life/Social Science and Inquiry and Nature of Science. The events challenge and motivate students of different ability levels to prepare for the competition at the state and national levels during the school year. The emphasis is on participation, interaction, learning, having fun, and developing team spirit. Raytheon retirees **David Carey** and **Dick French,** and others have been coaching students in Sudbury for a number of years. The Sudbury (Ephraim Curtis) Middle School won 2nd place at the state tournament on 3/21/09. SO is an after school activity, usually from October to March. Two hour practice sessions are held on a weekday afternoon through December, after which practice is expanded to include Saturday morning sessions also of two hours duration. There are some 30-odd students who comprise a Varsity and a JV team. All students participate voluntarily. They are eager to learn and a pleasure to coach.

How RSVA Spends its Money

RSVA is gratefully supported by Raytheon, which also provides a place to hold our monthly board meetings. We coordinate with Raytheon on their corporate activities including MATHCOUNTS and MathMovesU. You may be wondering how RSVA spends or better yet invests the financial

support and the dues we collect from our members. By far the greatest RSVA expense is the printing and mailing of over 5000 newsletters. This past year we converted 36 science experiments and demonstrations to DVDs that were originally taped by the Lawrence town media facility. Jim Ross is the star performer. The conversions cost $840. We contributed $1000 to the Massachusetts State Science and Engineering Fair, Inc. and $1000 each to the Robotics Clubs of Holliston High School and Nashoba Regional High School to offset costs for the First Robotics Competition. In memory of Barry Altschul, RSVA contributed $100 to the 1959 MIT Student Fund. Barry mentored the RAP version of FFSE (Fuller Future Scientists and Engineers) with Joanne Rogan at Fuller Middle School in Framingham for six years. In addition a contribution of $250 was made towards seeding the endowment to fund two small awards in future years to the top two graduating science achievers at the James P. Timilty Middle School in Roxbury. These are going to be the first science awards given at the Timilty school and are in memory of RE-SEED volunteer Bill Rachlin. Bill, a retired surgeon, had taught at Harvard Medical School and after retirement also taught courses at the Brandeis Osher Living and Learning Institute. However, he was most passionate about assisting in the science classroom at the Timilty School, which he did for several years. By the way, since RSVA is a non-profit organization, the $10 annual voluntary dues are tax-deductible contributions.

Titles of Videos Available

The following videos are available from RSVA: Note the missing numbers.

1 Buoyant Forces
2 Static Electricity
3 Bridges
4 Density
5 Design Process
6 Ocean Currents
7 Generating Electricity
8 Sound
9 Electricity & Batteries
10 Sound Waves
11 Observation & Inference
12 How Planes Fly
13 Airport
16 Osmosis
17 Catastrophic Events
18 Populations & Ecosystems
20 Balloons
23 Pulleys
24 Robots
25 Light & Prisms
26 Bugs
27 Scales
28 Finding the Center of Gravity
29 Force, Motion & Mass
30 Flight & Kites
31 Newton & Gravity
32 Catapults
33 Magnets
34 MCAS Questions

Volunteer Opportunities in Harvard College Observatory's ITEAMS Schools – Dr. Bruce Ward

ITEAMS (Innovative Technology-Enabled Astronomy for Middle Schools) funded by the National Science Foundation, is a three-year project created and managed by science educators from the Science Education Department (SED) at the Harvard College Observatory (HCO). The project targets more than 100 underserved and minority students in grades 5-8 enrolled in out-of-school-time (OST) enrichment programs. The goal is to provide sustained, innovative experiences emphasizing the centrality of Information and Communication Technology (ICT) for the growing STEM workforce. Extensive activities are built around the HCO's MicroObservatory robotic telescopes. Working from school, home, or libraries, the students directly control one of the telescopes (located in MA, AZ, and soon in HI) to get images, primarily of galactic and extra-galactic objects. The next morning the images are delivered to the students by email for processing (colorizing, enhancing, altering the dynamic range, creating simulations and visualizations, and more).

The program offers RSVA members an opportunity to assist the students working with the robotic telescopes and processing their astronomical images. The ITEAMS staff will provide a half-day workshop at HCO for all the RSVA volunteers in working with the telescopes, and in addition, provide full access to the telescopes (i.e., the highest level of user access). Ideally two RSVA volunteers would be partnered with each school. The time commitment for each would be three afternoons per semester (not necessarily the same afternoons), according to a schedule collaboratively set with the OST leader. ITEAMS groups meet one day per week for 60-80 minutes, always at the end of the school day. The five participating schools are the Amigos School (http://www.cpsd.us/AMI/), the Martin Luther King School (http://www.cpsd.us/MLK/), and the Benjamin Banneker Public Charter School (http://www.banneker.org), in Cambridge, the Robert Ford School in Lynn (http://ford.lynnschools.org), and the Matthew Kuss School in Fall River (http://www.fallriverschools.org/kuss.cfm).

Retirees' School Volunteer Association, Inc.

P.O Box 921
Framingham, MA 01701-0921

Directions to Raytheon Company, 870 Winter Street, Waltham, MA

From the East (Boston and Logan Airport) or West (Worcester):
From the Mass. Pike, exit at the 1-95/128 interchange after the tollbooth, and follow the signs for 1-95/128 north. Follow 95/128 North for approximately 2 miles to Exit 27B (Wyman Street/Winter Street). At the lights, turn right onto Wyman Street. Remain in the right lane and bear right at the yield sign onto Winter Street. Remain in the right lane and cross back over Route 128. (Continue with "Directions for All" below.)

From the North (Burlington/Lexington) or South (Dedham/Newton):
Take Route 128/1-95 to Exit 27B (Winter Street). When coming off the exit, stay in the far right lane and follow Winter Street. (Continue with "Directions for All" below.)

Directions for All:
Remain in the far right lane through two sets of lights, passing the Doubletree Hotel on your left. Travel around the Cambridge Reservoir (on right) for approximately 0.5 mile (pass AstraZeneca on left). Turn left at the granite sign announcing HealthPoint and Waltham Woods Corporate Center. Travel up the hill approximately 0.3 mile to a second granite sign for Waltham Woods (860-890 Winter Street) on the left. Follow the road sharply to the right passing the Massachusetts Medical Society on left (860 Winter Street). Continue approximately 0.2 mile. Green signs with arrows announce the Raytheon entrance on your left.