Nowadays when people who have been actively productive retire, they can look forward to living another 30 years or so if they remain active and vital. Retirement offers opportunities to take on new challenges. Many of us during our working careers were too involved with career development and raising our families to give back anything significant to our communities. In retirement with 30 years left, retirees need some productive endeavor," writes Jack Hotchkiss (LM Chapter Coordinator, Region 4). He goes on stating, "Engineers spend their working lives contributing to the betterment of mankind through advancing or applying technology. Those same skills we used all those years can continue being used in retirement for more direct assistance to our fellow man right in our home communities!"

Jack’s article on page 2 about the Rockwell Collins Retiree Volunteers, along with others in this issue, points out the valuable work LMs are doing. The accomplishments of Life members as individuals and when working together is indeed a marvel to behold. Interested in what working in a group environment can accomplish? Join a LM Chapter or form one if no LM Chapter exists within your Section. Contact information for help is on page 3.

Jack’s article also illustrates how this newsletter can serve as a forum for exchanging ideas. For instance, the "War Stories" section continually receives entertaining and absorbing contributions, not to mention responses. (The H2S saga on page 5 lives on, issue after issue, thanks to readers writing about discrepancies or clarifications.) In addition, Bill Visher, a Life Senior, talked to me about having a place to kick around and evaluate ideas. On page 6, he sends up a trial balloon to see if there is interest.

These pieces show how this newsletter can serve as a networking hub to Life members. Of course, the Life Members Committee has been using this newsletter to talk to you for years.

To this end, the IEEE Life Membership Profile for 2002 will be on its way to you soon. Keep your issues of IEEE Spectrum and The Institute coming in a timely fashion, just make any address changes on the LM Profile sheet and the "RETURN" LM invoice sheet and return them. If you are a Life Member in one or more IEEE Societies, you must respond to continue receiving each Society’s core publication. If an amount is due on your renewal profile, you can update your profile on the web.

Finally, I am representing Life members’ commitment to volunteer service by running again for IEEE President-Elect as a Board nominated candidate. This year the two other worthy nominees are Michael S. Adler and Paul J. Kostek. You can compare our backgrounds and positions regarding IEEE’s future by logging on the web at <http://www.ieee.org/organizations/corporate/preselect.htm>. In any case, be sure to exercise that important IEEE member privilege—vote!

Arthur Winston, Chair
Life Members Committee
Satisfaction in volunteering

I read with interest Donald J. LeVine’s story in your last IEEE Life Members Newsletter on “Volunteering by trial and error.” When I retired I declined opportunities for employment. I learned there is no end of opportunities to help others.

The American Association for Retired People (AARP) has a very broad spectrum of volunteer opportunities. However, my first volunteer activity was through RSP (Retired Service Volunteer Program). I began reading the newspaper to the blind and volunteered to assist in preparing audio recordings of textbooks for the blind. This was done at the Recording for the Blind and Dyslexic, a national organization. This organization has helped many blind students, at all academic levels, but I found it was not satisfying my needs.

This led me to my current volunteer effort, assisting a Math teacher in a middle school with learning disability students. Assisting young people with learning disabilities is a satisfying challenge.

Walter Blanchett, Life Senior
Hamilton, New Jersey

I am writing to disabuse members of the IEEE about the actions of SCORE. To this end, I will begin by apologizing to Donald LeVine who had a bad experience detailed in the recent Newslett-
er. SCORE is nonprofit organization sponsored by the US Small Business Administration (SBA). My experience has been the opposite of Mr. LeVine’s. We have had contracts for two years and last year we counseled with more than 5,000 individuals who wanted to start a small business. In addition we taught an all day seminar twice a month with about 25 (35% of total 900) who answered about 10,000 phone calls and almost 600 e-mails requesting assistance.

To handle this volume with 70 members, we must have rules to distinguish members from the “old man” club folks. We request that every member work 100 hours per year, that every member have experience as a CEO of a business and that every member be trained for several weeks in SCORE before being offered to counsel. We do not ask for dues but we do charge for all seminars and pay a good part of our expenses.

It may interest the IEEE to know that we counsel a goodly number of engineers who have retired and want to start a small consulting busi-
ness, to exploit a patent, or devise a new proce-
dure. Fortunately, we have engineers as members of SCORE who can provide this assistance.

J.H. Brown, Life Fellow
Houston, Texas

Retired engineers can be community productive

In Cedar Rapids, Iowa, there is a very active and vital group of retirees known as the Rockwell Collins Retiree Volunteers (RCRV). Mostly, they are IEEE Life members, mechanical and industrial engineers plus bargaining unit crafts people. These retirees contribute their time and talents part time to design and make devices to help handicapped people. In addition, they work with the local K-12 schools to perform various tasks assist-
ing the educational process. They operate an Internet physics hotline to assist students with tough questions, have updated a physics lab, installed and maintained after school activity computers.

The work RCRV does for the handicapped is performed through local organizations. The largest involvement is through a publicly supported edu-
cational agency that has an outreach to over 200 schools that deal with needs of handicapped stu-
dents. Many devices have been designed and built to enhance students’ lives, especially in Adapted Physical Education. Among the many devices are catapaults of several sizes for throwing balls, a frisbee thrower, archery device, golf putter and bowling ball launcher. An effort is underway to utilize International Morse code as a means for mute people with no finger dexterity to use a computer to communicate through a sip and puff switch.

Devices have also been designed and con-
structed for handicapped adults to permit workers to be productive who otherwise were unable to work. A coalition with the local judicial district that has parolees and probationers obligated to perform public service work was formed to do quantity production.

Sign on to the Rockwell Collins Retiree Vol-
unteer website www.rccvl.org and browse through their many designs placed in the public domain for others to use. RCRV will assist any group to get started with similar endeavors. Contact them at 319-236-4926 or email at <rcrv@collinsclub.com>

Local IEEE Life members looking for good reasons to form a LM Chapter need look no further than using their engineering talents toward helping people.

Jack Hatchekiss, LM Coordinator Region 4
Marion, Iowa

LMF update

The final tally for the year 2000 Life Members
Fund (LMF) contributions was $175,520 (USD). This is actually $18,679 less than was received in 1999 ($194,208). With investments falling ill with some stock market bug, total income dropped from $453,776 in 1999 to $205,237 (2000). We realize the stock market probably played a part in the contrib-
tions’ downswell as well.

endeavors to project areas you have checked off in past surveys. They are 1) young electrical and computer engineers and potential ones, 2) Life members and other similarly mature members not yet LM’s and 3) the history of electric-
also, the LMF Web site (<www.ieee.org/lmc>) has been greatly expanded. Anyone may now view an updated list of LM Projects and maps of all LM Projects.

LM Profile

The LM profile form has become chock-full of data and at first glance it appears overloaded; however, it is a very powerful tool (for instance, one page is actually a duplicate for your records).

Even so, we need you to complete and return it so we can maintain accurate records for you. And, if you are getting any publications included in a Society Life membership(s) you must return the LM profile to keep getting the publications. If an amount is due, you can update your profile on the web. The mailing goes out the end of September/early October. Look for it, open it, decipher it, make any changes you deem necessary and, please, send it back. And, if you choose to contrib-
ute to the IEEE Life Members Fund…thanks!

LM Outreach

In 2000, the LMC agreed to suspend service to LMF LMs (104 years and older) who had not responded to the annual LM Profile Letter and a special notice that indicated suspension of services unless they responded. At their April meeting, the LMC agreed to expand the LM Outreach to LMs who are 95 thru 99 years old this year.

Getting a foothold

IEEE-Canada (Region 7) has approved an initia-
tive to stimulate greater activity among IEEE Life mem-
bers (LMs) in Canada. Ron Potts, an extremely active LM volunteer, has agreed to accept the challenge and is already receiving support from across the country as he takes those first steps towards reaching the troops.

The issue of forming viable Life Member Chapters at the Section level in the traditional manner is tough to accomplish. The proportion of LMs in most Sections is small and the distance between Sections is extremely large. Nevertheless, it seems that a process to develop LM Chapters in the Section level, no matter how small, and a coordinated communications plan for all Canadian LMs will go a long way towards meeting this initiative.

Already a group has been formed to set the direc-
tion for our activities. LMs from the following Sections have agreed to participate: Bert Dougall (Hamilton), Tom East (Kitchener-Waterloo), John Watson (London), Wally Read (Newfoundland-Labrador), Mohinder Sachdev (North Saskatchewan), Bob Weinberg (Peterborough) and Len Bateman (Winnipeg). The Chair encourages other Sections, not yet repre-
sented, to appoint a participant.

The officers are: Chair Ron Potts <potts@mac.com>; Vice Chair Mohinder Sachdev <ms.sachdev@atlantic.net>; Secretary Wally Read <read@ieee.org>, Region 7 Liaison Dave Kemp and Engineering Institute of Canada (EIC) Liaison Len Bateman; support Cathy Lowel.

We are on our way to being an important resource for Section activity. Stay tuned for further updates.

Wally Read, Life Fellow
Newfoundland, Canada

LM Chapters: A Life Member Chapter can help Life members and other IEEE members remain active and involved. The LMC can make LM Chapters available as seed money. Dan Jackson oversees this program for the LMC as the Regional LM Chapter Liaison. For more information or to request a LM Chapter contact him or your Regional LM Chapter Coordinator.

Region Coordinator


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LM web site: <www.ieee.org/lmc>
Buck Rogers radio

I enlisted in the Electronics Training Group (ETG) in 1942 and was called up in 1943, two weeks after the last summer school class for my BEE degree from the City College of New York (CCNY). I was trained as a second grade radio operator. Then after being hustled out of OCS, I trained on the anti aircraft artillery SCR-584 radar. This was a new, field transportable, 10-centimeter gun laying radar set that was used only for training and aircraft control while and then aiming our 90-millimeter antiaircraft rifles at the locked-on targets. When this training was completed, I was diverted to the new, then secret AN/TCRS school to learn to operate a 4000 MHz, 8 voice (telephone) channel microwave communications set. At that time, line-of-sight microwave communications was so new it was referred to as "Buck Rogers" radio after the science fiction character.

The company to which we were assigned was divided into two groups. I was sent overseas with the first section under the executive officer. The second group, which never left the States, was supposed to follow with their new, best equipment, while we went with the microwave equipment and minimum test gear and spare parts. In Germany, we joined the battalion that furnished communications to the Field HQ. We spent one year in Germany providing seven channels of telephone communications between the 12th Army Group and the 7th Army, then later, between Frankfort HQ and Berlin, across the Russian zone. One channel of the microwave was always reserved for engineering use.

We were broken into independent teams with a junior officer, two power generator maintenance men, and a radio operator, of which I was one. We operated independently, in the field, drawing rations, supplies and necessary services from the nearest US military unit, via our own trucks. To avoid the induction of "C" ratings—because we were such a small unit—our lieutenant promoted himself to the position of mess Officer of a fictitious regiment. He would sign the order to draw such delectable goodies as canned chicken. Needless to say, we ate well. The extra food was used for trading purposes with the locals for services not otherwise available. For example, in the hills near Kassel, we lived in and operated from an 18-room farmhouse kept it heated, clean, shovelled snow and helped with cooking. Our microwave equipment was new, and had never been field tested adequately. To illustrate our inadequate resources, we once had a test rig set up in our operations room to diagnose a problem with one of the units. The unit under test was so bad that it caught fire while we were testing it. We were so powerless to do anything and fed up with our inability to correct the situation that we just laughed as it burned itself out. We were operating 24 hours a day, every day, necessitating rotating shifts. This way no one was always stuck with night duty in our equipment trailer in the snow covered woods. A type of life I had never seen before. Climbing straight up a 50 foot, ice encrusted tower in the middle of the night, with a pocket full of tools and parts while knocking ice off the tower ladder rungs with one hand holding a hammer and the other holding onto the ladder. On top of the tower, we had to juggle a flashlight, tools, tiny pieces of equipment and delicate vacuum tubes, while standing on a slippery little platform in a freezing wind.

By the time we were to be rotated back to the States, there were almost no spare parts left. We were reduced to kicking the equipment as the most effective way to restore service.

Donald J. LeVine, Life Senior Boynton Beach, FL

When I met my first radar set

When WW II started in 1939, I was entering the third year of my Electrical Apprenticeship at H.M. Dockyard, Sheerness. This year was spent working on the various ships. I was assigned to a rail group involved in the installation of radio equipment. In the spring of 1940 we were told that we would be installing a special piece of equipment, and that a crate containing the units would be slain on trains with an armed guard to limit access to the area.

The crate was duly opened and the units moved into their future "home" and duly installed and connected in accordance with a set of drawings, which were also in the crate. I would add that each unit had a front cover secured by wired lead seals, and each cover carried the admonition DO NOT REMOVE THE COVER.

The instructions came with the equipment that stated when ready for test, for a specialist from Signals department. The great day arrived, the specialist arrived, took the front covers off and checked the connections and reached for a rotary switch labeled "OFF—STANDBY—ON" words I have seen for a great part of professional life (as have many others). He selected Standby and after a short while a horizontal green line appeared on a round glass "window" and a green light labeled "ready" came on. He selected ON and his next comment was a little startling, "Good God it's—Working."

For those who like specifics, I'm afraid my memory fails me but I suspect that it was an experimental unit, without a type number. Tests were performed over several days and I learned a bit more about this equipment. It almost certainly started my stepping a path that was almost all concerned with RDP that became Radar.

William E. Bennett, Life Senior Olympia, WA

In response to past "War stories"

"Professor Lindemann or is it Lord Cherwell?"

..."It was the summer of 1942 when I was in the program to develop H2S but Professor Lindemann. In fact, they were one and the same person; when elevated to the peerage, Lindemann took the name Cherwell. …Proof of this is to be found, for example, in Pioneers of Radar (C. Latham and A. Stubbs, Sutton Publishing Ltd., 1999) where Lindemann/Cherwell is referenced a number of times. In the index to the book, under "Cherwell" it says "Lord Cherwell.""

Many readers will no doubt point this out to you [Editor's note: Oh, yeah, …] However, should that not be the case.

Harry E. Green, Life Senior Member Burnsise, Australia

...They [Professor Lindemann/Lord Cherwell] were one, and the same, person. Lindemann had a considerable reputation as been a brilliant physicist but have no further knowledge of the First World War.

In 1919, he became Head of the Clarendon Laboratory at Oxford University, where he built up a first-rate physics department, though he did little research. I met him several times when I was studying physics as an Oxford undergraduate in the late 1930s. Because of other activities, he was not often visible at the laboratory. While I was there, his lectures were poorly attended and, eventually, untranslated.

When Churchill became Prime Minister in 1940, he appointed Professor Lindemann as Paymaster General. This post had no defined duties and Cherwell was never removed to keep in close contact with Churchill. In 1942, Lindemann was made Lord Cherwell by King George VI, presumably on Churchill's recommen-

dation. (The name came from the River Cherwell, which flows into the Thames at Oxford.)

His influence on wartime technological development was considerable, but not always positive. He was apt to come up with ideas that would have been disregarded if they had originated elsewhere. Because they came from him, they had to be looked into carefully. This absorbed scientific manpower through which he worked.

His most valuable work was in briefing Churchill on the scientific and engineering aspects of the war effort, so that money and resources could be directed where they were most needed. Thus, he drew Churchill's attention to the very poor accuracy of our night bombing.

...in 1941/42 I was working on a 1-meter radar in the requisitioned ex-school (Leeson House, Bermondsey) where much research was being done. But I was not directly involved and so I have nothing to contribute to how the name arose. I seem to be in good company. In December 1941, Bernard Lovell was put in charge of developing the system that became H2S. In his book, Echoes of War—the Story of H2S Radar, he says that the name H2S was insisted on by Cherwell, and first appeared in his own diary on 14 April 1942. He offers several possible reasons for this, but Lovell remains uncertain about what made Cherwell choose it.

E H Cooke-Yarborough, Life Member

Also, the pentode praises continue...

As a 17-year-old kid (under communism in post-war Hungary) I was an active (almost 'unlisted') ham radio amateur. Using code, German personnel, the DL1Z0000-s, I built my own shortwave receiver. These tubes were unique in a number of ways: The sockets were mounted in the chassis upside down (i.e. hanging downwards into the chassis) and the tubes were plugged in upside down from above the chassis. This had the advantage of mechanical safety: the tubes couldn't be hit since the socket was encased the tube and was out of sight. Without the withdrawing knob screwed into the base of the tubes, a single glance from above indicated whether all the filaments were lit. The anode-cap was on top of the tube, being at the deepest part of the chassis, so no anode voltage could be accidentally touched or shorted from above the chassis. The tubes were quite small, about 2 inches tall, and were of an extremely robust construction.

Peter I. Sormo, IEEE Fellow

Waklinacey Heights, Australia
Sending up a trial balloon

I talked to Arthur Winston at the IEEE presidential candidates' debate in Philadelphia on 27 June 2001. I complained that there wasn't a good place in the IEEE to publish ideas for evaluation by the membership. He thought that the Life Members newsletter would be ideal. What do you think?

One to try out

I have an idea for a single sideband (SSB) demodulator. I would like to know if anyone knows of this approach.

The various approaches to SSB reception and transmission are described in 200 pages of the Proc. of the IRE, Dec. 1946. (1) Filter out the undesired sideband at RF and demodulate with a conventional IF and detector.

(2) Mix down the SSB signal to baseband into two I and Q channels. Two all-pass networks are used to shift the phase quadrature in such a way that the difference in phase is 90 degrees. The addition of these signals will sum to be the desired output for one sideband and will sum to zero for the other sideband.

(3) The 3rd approach by Donald K. Weaver Jr. takes the output of the I and Q channels and translates them to the intermediate frequency in the middle of the required passband where more filtering is done. A final translation to baseband allows a summing to yield the desired sideband.

Today's approach may be seen in the issues of the Journal of Solid State Devices. They use I and Q channels at baseband, followed by analog to digital converters, and a digital signal processor which performs the equivalent of the 90 degree phase difference networks.

I propose mixing the SSB signal down to baseband into three channels. More than two channels allows the recovery of the instantaneous (360 degree range) phase. With the proper phase relationship of the RF and LO inputs to the three mixers, the three outputs will look like a 3 phase signal (equal amplitudes, and 120 degrees between them) for one of the sidebands. The other sideband will present three equally phased signals.

Thus, summing these will result in zero voltage for one sideband and a 3.5 dB higher voltage for the other sideband.

Theoretical performance was calculated using trigonometric functions for the mixing operations. The rejection of the undesired sideband occurs as expected. The sum frequency mixer output cancels but the mixer generates a 3 phase signal. The bandwidth of the operation is related to the accuracy of the RF and LO phase shifting networks.

The concept of a three IF receiver has been used in a low IF AM prototype receiver that uses the 3 phase relationship to cancel the carrier frequency in the demodulator. The frequency discriminator of G.F. Sheaffer (Proc. of IRE, Aug 1942, pp 365-7) works well in a three-phase version due to cancellation of the mixing products.

W.A. "Bill" Vischer, Life Senior
Ambler, PA
Vischer@WebTV.net

Legacy giving

The IEEE and the IEEE Foundation are proud to announce the establishment of the Goldsmith League, named for Alfred N. Goldsmith and his wife Gertrude (Maude), as a special tribute for their legacy gift that seeded the IEEE Foundation's ability to award grants to worthy projects that impact the profession. The Goldsmith League honors those who have left, or shared their intention to leave, a legacy gift to the IEEE or the IEEE Foundation. Legacy gifts include a bequest in your will, naming the IEEE or the IEEE Foundation as a beneficiary to your retirement plan or life insurance policy, or designating the IEEE or the IEEE Foundation as a beneficiary to your Charitable Remainder or Lead Trust.

As an IEEE Life member, you have each, in your own way, helped to shape the profession. By leaving a legacy gift to the IEEE or the IEEE Foundation, you can help to shape its future. Perhaps you would like to make a personal commitment that will ensure that bright, but disadvantaged electrical engineering students have access to participate in IEEE opportunities, or that the history of technology is not forgotten. Or you may wish to support the IEEE Foundation or the IEEE Life Members Fund in its goal to support the advancement of technology and education. The IEEE Development Office is available to help you design a gift that will fulfill your personal goals and make certain that your legacy will make an impact on the profession.

If you choose to remember the IEEE or the IEEE Foundation with a legacy gift, please consider informing the IEEE Development Office. This helps us plan for the future and recognize your generosity during your lifetime with membership in the Goldsmith League. You can reach the IEEE Development Office by telephone at +1 732 562-3860 or by email at support@ieee.org.

Internet for the chronologically challenged...
Stopping IEEE services

Those who wish to have all services stopped should contact IEEE Member Services (use the NJ address on this page). Phone calls are accepted but submitting this request by fax, e-mail or snail mail is preferred. This way IEEE has something for its records.

If you are doing it as a favor for someone else, submit the member's name, number, grade, address, change date and your connection, e.g. Section Chair. To reach IEEE Member Services via e-mail <member-services@ieee.org> or fax: +1 732 562 6380.

Our mailing list

The Life Members Newsletter is distributed to Life members, IEEE members 65 years and older, retired IEEE members aged 62 through 64 and members of special boards and committees.

Submitting articles

We welcome articles for this newsletter. In particular, we seek articles about projects initiated at the Section and Region level by Life members. In general, published story lengths are:

- quarter page—175 words
- half page—350 words
- three-quarters page—525 words
- full page—700 words

Acronyms should be spelled out once. Reference dates (years) should also be included. Editing, including for length, may occur. If you wish to discuss a story idea beforehand, you may contact me by e-mail <l.carlson@ieee.org>. Or, you may call Mary Campbell, Managing Editor, at +1 732 562 5526.

The deadline for possible inclusion in the next newsletter is 15 November 2001. Please include a phone number or an e-mail address.

Len Carlson, Editorial Liaison

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Qualifying for LM status

To qualify as a Life member, an IEEE member must be at least 65 years old, and the sum of the member's age and the number of years of paid membership must equal or exceed 100 years.

Where to write

Have questions, opinions or problems? Contact the Life Members Committee or its Staff by writing to: IEEE Regional Activities, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, Fax: +1 732 463 3657 or E-mail to: <life-members@ieee.org>.