WATTS

10-2010
Year 80 + 10m

Monthly newsletter of the Pretoria Amateur Radio Club
Maandelikse nuusbrief van die Pretoria Amateur Radio Klub.

PARC, PO Box 73696 Lynnwood Ridge 0040, RSA

web http://www.parc.org.za mail: zs6pta@zs6pta.org.za

Bulletins: 145,725 MHz 08:45 Sundays/Sondae
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
Activated frequencies are announced prior to bulletins
Swapshop: 2m and 7.066 MHz Live on-air after bulletins
Bulletin repeats Mondays | herhalings : Maandae 2m 19:45

ZR6FD logo

Drukwerk printing ZS6JPL

Papier / Paper ZS6JPL

Screwdriver antenna home brew - Hein ZS6Q builds his own – p5

In this issue

In hierdie uitgawe

Next Meeting
(after fleamarket)

Date: 9 October 2010
Time: 13:30 for 14:00

PMC Premises,
Keuning str.
Silverton

PARC Management team / Bestuurspan Aug. 2010 - Aug. 2011 (provisional)

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Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 8 Sept. 2010.

Welcome: The chairman welcomed all present.

Present: See register, 12 members.
Apologies: ZS6RH, ZS6BW, ZS6AQS, ZS6TB, ZR6RAF.

Joys & Sorrows: Jac ZS6QA became silent key on 26 August, and the funeral, held on 3 September was attend by Andre ZS6BRC, Richard ZS6UK and Molly ZR6MOL. Andre ZS6BRC gave a short speech on behalf of PARC.

Minutes: The minutes of the previous meeting were read, approved by Graham ZR6GJR and seconded by Pieter ZS6PA.

Web site: Graham ZS6GJR had communicated with Tjerk ZS6P about the web site.. Chris from CSIR who was doing the maintenance is back in the country. Tjerk holds the domain data. The site should be back up by 13 September.

Finances: We have a bank balance of R7282.78 with R1450 in cash..

Membership: There are 91 paid up members of the total of 138 for 2010/11 already..

Budgets: Planning is taking place, each committee member will submit a budget for his area of responsibility.

Flea Market: The date of the next flea market is 9 October, and will be held at PMC at 08:00.
.
Awards: A list will be sent to Tjerk.

Heritage Day: This comes up on 24 September, and Vince ZS6BTY gave a should covering talk on it. PARC will be a Schanskop. The event is also known as blockhouse day and takes the form of an HF sprint.

Presentation: Pierre ZS6PJH will arrange something on cryptography for October.

Contests: Pieter ZS6PA gave a presentation with slide show on contests.

Next meeting: The next meeting will be on Saturday 9 October 2010 at about 14:00.

Editorial

Having to publish subscription reminders every month across the June 30th date does not create a good impression. Please support your club financially in a timeous fashion. There are all sorts of running expenses to be taken care of which can translate to your hobby's advantage and pleasure in the the financial year ahead. The SARL should deserve the same attention as the protector of your privileges.

Redaksioneel

Om elke maand weerskante van 30 Junie ledegeld aanmanings te moet publiseer veroorsaak nie 'n goeie indruk nie. Ondersteun asseblief u klub geldelik op tyd. Daar is allerhande lopende onkostes om na om te sien wat tot u stokperdjie se voordeel en genot kan omskakel in die komende finansieële jaar. Die SARL verdien ook dieselfde aandag as die beskermheer van u voorregte.

Birthdays Oct Verjaarsdae

01 Evan ZS6ELI
02 Hans-Peter ZS6AJS
02 Andre ZS6BRC
03 Poppie ZS6BCP, lv van Hansie ZS6AIK
06 Danny ZS6AW
09 Ed ZS6UT
10 Harry ZS6AMP
10 Roy ZS6MI
10 Hein ZS6Q
13 Bill ZS6KO
14 Iza ZR6IZA
14 Gary ZR6TB, son of Selma and Joe ZS6TB
15 Caleb, son of Phil and Craig ZS6RH
16 Hannie ZR6HWM, seun van Poppie ZS6BCP en Hansie ZS6AIK
20 Corlene, dogter van Poppie ZS6BCP en Hansie ZS6AIK
20 Martinho ZS6BQP
21 Louise, lv van Almero ZS6LDP
22 Marieza, dogter van Marelise en Pierre ZS6PJH
26 Callie ZS6BRY seun van Susan en Freddie ZS6JC
26 Marilyn, sw of Deryck ZS6KQ
27 Craig ZS6RH
28 Tracy, daughter of Joey and Graham ZR6GJR
29 Pierre, seun van Marelise en Pierre ZS6PJH
30 Viv ZS6BZS
30 Andre ZS6GCA
31 Darlington, OM of Hilary ZR6HAP

Anniversaries Okt Herdenkings

02 Erna en Whitey ZS6JJJ (39)
06 Poppie ZS6BCP en Hansie ZS6AIK (48)
13 Susan en Freddie ZS6JC ( )
17 Elmarie ZR6AXF en Johan ZS6JPL (18)

Joys and Sorrows | Lief en Leed

Bill ZS6KO was again unwell and was in clinic for a while
Tony ZS6CRO had to have medical attention due to a dog bite
Magda ZS6MVW was ernstig siek met bronchitis
Charrell ZR6GN suffered a stroke and is recovering slowly

Diary | Dagboek (UTC times)

Oct.	02-03	ARRL EME Contest 00:00-23:59
	03	UBA ON SSB Contest 06:00-10:00
	03	RSGB 21/28 MHz Contest 07:00-19:00
	07	**SARL QSO Party 17:00-20:00**
	10	**Bonaire – see p4**
	09-10	Oceana DX Contest CW 08:00-08:00
	10	UBA ON CW Contest 06:00-10:00
	16-17	WA Germany Contest 15:00-14:59
Nov	06-07	Ukranian DX Contest 12:00-12:00
	13-14	WA Europe RTTY contest 00:00-23:59
	13-14	OK / OM Contest CW 12:00-12:00
	19	YO International PSK Contest 16:00-22:00
	20-21	**SARL Field Day Contest 10:00-10:00**
	20-21	LZ DX Contest 12:00-12:00
	20-21	Austrian 160m Contest 16:00-07:00
	27-28	CQWW DX Contest CW 00:00-24:00

PARC SUBS / LEDEGELD 2010-2011

Please remit your subs in time to our treasurer or by transfer to:

Betaal asb. u ledegeld betyds aan ons tesourier of per oorplasing aan:

Bank : FNB
Branch : 25 20 45
Account : 546 000 426 73
Your call sign must appear as statement text!

Ordinary members/ gewone lede R150
Spouses, pensioners R50

So far ±91/105 members have renewed

CQ Hou Koers 16 Oktober.
Johan ZS6JPL sal die amptelike stasie by die Monument bedryf op 2m met HF herleiding en IRLP en Echolink

Snippets | Brokkies

SARL VHF/UHF analogue contest 18-19 September. PARC put in a gallant effort on Gemsbokberg near Vrede in the Free State, some 250 odd km from Pretoria. The team managed some pretty long distance QSO's and should have done well. Their meticulous planning was presented to the club meeting on 8 September. WATTS will report in more detail in the next issue.

Heritage Day Blockhouse Sprint 24 September. Vincent ZS6BTY, Liam ZR6RAF and Pierre ZS6PJH were at Fort Skanskop. Possibly more on this in the next issue.

NEW LICENCE FEE STRUCTURE TABLED IN GOVERNMENT GAZETTE

On Friday 27 August ICASA published the new licence fee structure in the Government Gazette no 33 495. The minimum fee for any radio licence is R120. The new fee structure will become effective on 1 April 2011, at the start of ICASA's financial year. All licenses in the amateur service will cost R120 per annum from that date.

On 29 April 2009, the SARL submitted a memorandum to ICASA objecting to the proposed increases and argued that it would not be in the interest of retired persons and the youth. However, ICASA declined the SARL proposals for lower fees. Putting the new fee in perspective, it is well within the average inflation figure of the past 25 years, amounting to less than 8% per annum increase.

>From 1 April the following licenses will increase to R120 per annum:

. ZU, ZR and ZS licenses
. Beacon licence
. Change of call sign request
. Special event licence
. Listener licence
. Repeater station including radio link
. Digipeater/bulletin board
. Experimental station for weather satellite reception and retransmission.

There is a discount for advance payments as follows:
If the licence is paid 2 years in advance it will cost R240; 3 years R329; 4 years R419 and 5 years R500.

ARRL Awards Committee Makes Statement on Dissolution of Netherlands Antilles on 10-10-'10

To clarify the administrative process by which the anticipated changes to the two existing Netherlands Antilles DXCC entities will be made, the ARRL Awards Committee has determined that at 0400 UTC (12:00 AM local time in the islands) on October 10, 2010, the two Netherlands Antilles DXCC entities will be deleted.
Commencing at 0400 UTC (12:00 AM local time) on October 10, 2010, operation from the islands of Curacao, Bonaire, Sint Maarten, Saba and St Eustatius will count for a yet-to-be-determined number of new entities under the DXCC List Criteria and Political Entities, Rule 1 and/or Rule 2 Geographic Separation Entities.
When the Awards Committee determines what Rule 1 or Rule 2 actions apply, it will announce the final disposition of the entities on the DXCC list. The DXCC desk will not accept confirmations for these new entities until after January 1, 2011.

Four new countries

from www.ae5x.com see also www.bonaire.com

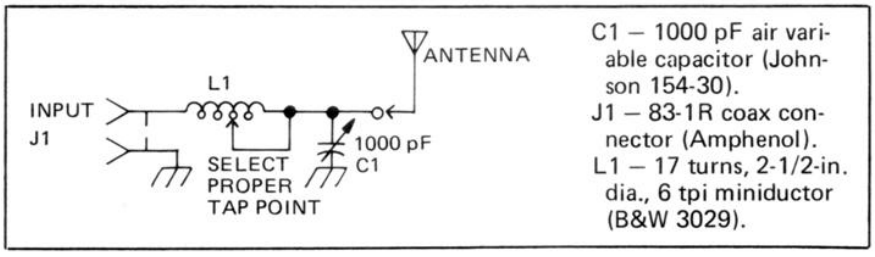
It's looking pretty certain that on October 10, four new countries will become available to DXers courtesy of the Dutch government.

All indications are that the first on the air and the strongest by far will be Bonaire.
6 Simultaneous locations (good thing – they'll probably all be swamped with callers) will be on the air, including one team stationed at an old Radio Netherlands site and using its 21 dB antenna for several hours a day on 15, 17, 20 and 30m. Not sure which direction that 21 dB favors though…

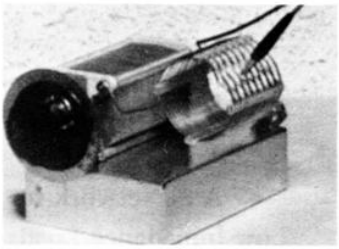
One-knob coupler for long-wire antennas

This simple circuit performs well with an ideal wire length of approximately 26 meters (87ft). This particular dimension provides a reasonable termination for the coupler on all bands, 10m to 160m.
In the practical circuit build-up the antenna receptacle connects straight to the rear end of the coil as well as the variable capacitor. A clip-lead arrangement or rotary switch can select the correct coil taps for the different bands.

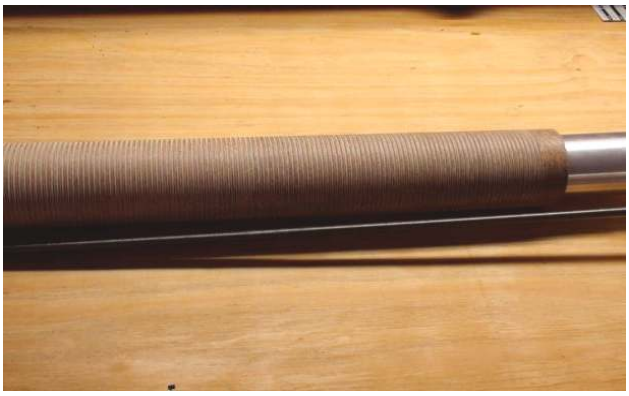
A simple Transmatch for long-wire antennas.

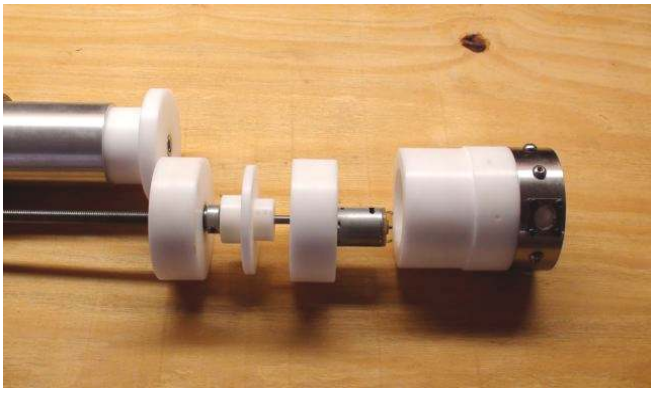


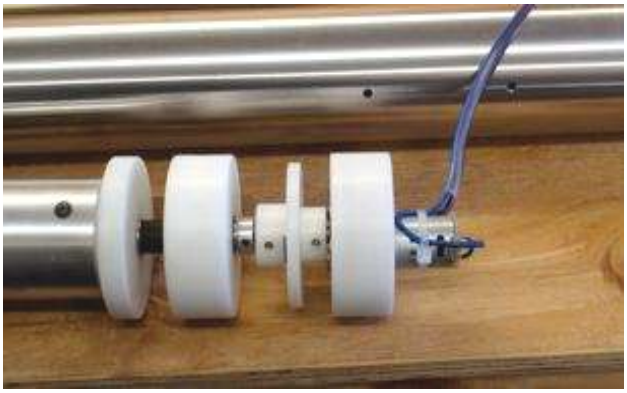
C1 – 1000 pF air variable capacitor (Johnson 154-30).
J1 – 83-1R coax connector (Amphenol).
L1 – 17 turns, 2-1/2-in. dia., 6 tpi miniductor (B&W 3029).



Some pictures of Hein ZS6Q's screwdriver antenna in the making



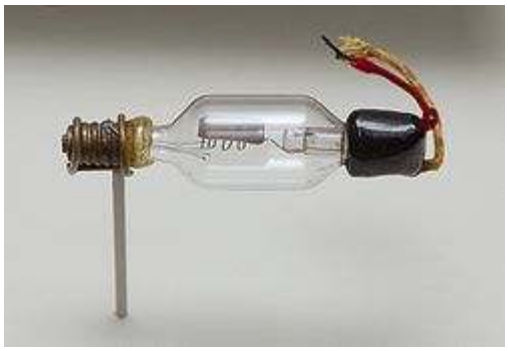




The remarkable Dr. Hendrik van der Bijl

Compiled from Google and Wikipedia

This article contains biographical information about this South African physicist who while continuing his studies in Germany investigated photoelectric emission using an apparatus with a photocathode, an anode, and a grid similar to de Forest's Audion. He established the behavior of this three-element system and subsequently extended the analysis to apply to the thermionic triode at the Western Electric Laboratories in New York. He used this knowledge to design many of the first tubes used in radio and telephony; he invented the grid modulation system for radiotelephony and wrote the first textbook on the vacuum tube in 1920. Soon afterwards he returned to South Africa as Scientific Advisor to the Government and created a countrywide electricity supply network, a world class steel corporation, and numerous other important industrial enterprises



"Triode" Audion from 1908. (The 1906 Audion was a 2-element device with the signal applied to a wire wrapped around the glass envelope.)

The vacuum tube which made electronics possible began in 1906 as a radio detector known as the Audion invented by Lee de Forest.

Between 1913 and 1920 the South African, Dr HJ van der Bijl was an important member of the Bell Laboratory research team which had developed the 'valve'.
(now AT & T and then known as Western Electric)

Van der Bijl was born in Visagie street, Pretoria and matriculated in Franschhoek Boy's High School after which he became the third student to receive a degree in physics at Victoria College (now Stellenbosch).

In 1909 he began to work for a doctorate in Germany which he obtained in 1912 and then took a post as Assistant in Physics at the Royal School of Technology in Dresden. It was here where investigations into photo-electric effects and vacuum techniques taught him a great deal about the behaviour of electrons in a vacuum.

It was at the time when he was to publish a paper on the results of his research that Prof. Millikan of Chicago University presented a paper in Germany describing his own similar work and was later introduced to van der Bijl.
Some time later, on recommendation of Prof. Millikan, he worked in the New York laboratory to thoroughly investigate the Audion for use as repeater amplifiers over long telephone lines.
The Audion had a poor vacuum and a very poor filament. Dr HD Arnold of Western Electric had then made several improvements which allowed operation to 80V without producing the blue glow of ionization which gave it erratic behaviour. Also barium coated filaments, as suggested by the German Arthur Wehnelt, gave a greatly improved electron emission.

Van der Byl's first contribution was to introduce an improved method of glass envelope evacuation. His first design was the Type M (Mounted) repeater bulb for the first long distance 5000km telephone route between New York and San Francisco. These tubes had a life of 400h.
His theoretical studies brought about the Type L which had 4500h of life. In a paper of 1918 he outlined his analysis of the triode and introduced the familiar terms such as æ, anode resistance and slope. In a second paper of 1919 this triode was analyzed as a non-linear device for detection. He also put forward the definition of a standard cable-mile = 1.056dB loss.
He freely acknowledged the advice and interest shown by his colleagues such as Dr HD Arnold, EH Colpitts, RVL Hartley, HW Everitt and others.

During WWI the US Military contracted W.E. to develop a rugged tube for airborne use. v/d Byl designed the VT-3 popularly known as the 'peanut tube'. Its official designation was the 215A and required only 2V at 200mA for the filament. This tube was widely used after WWI in receivers and also manufactured in England by STC.

The use of radio for long-distance telegraphy transmission was investigated next. He developed a grid-modulation system which was named after him. In 1915 the company built a 2-3 KW transmitter with 550 tubes in parallel!!
Speech was conveyed by means of a v/d Byl Modulator on a carrier of 50 kHz and transmissions were heard at the Eiffel tower and also reached Hawaii 8000km away.

In other projects he implemented gas focussing in CRT's. This was widely used in oscilloscopes up to 1930 but its bandwidth limitation caused its demise.
He also wrote the first comprehensive text book on vacuum tubes which was a standard work from 1920 into the 1930's. It contains interesting information such as the fact that EH Colpitts devised the push-pull circuit.

In total v/d Byl was awarded 17 US patents. He developed tetrodes, methods to reduce microphonics and even speech inversion to provide secrecy in radio telephony. Another tube of simple coaxial construction he devised was made in large quantities in France during WWI. This Telegraphie Militaire (TM) was copied by British and Dutch manufacturers where they were known as the 'R' valve.

In 1918 General Smuts asked v/d Byl to return to South Africa to take up a position as Scientific and Technical Advisor to the Government. After much soul searching he returned in 1920 to begin a completely different life.

New "South African" plug to make its appearance? from WWW

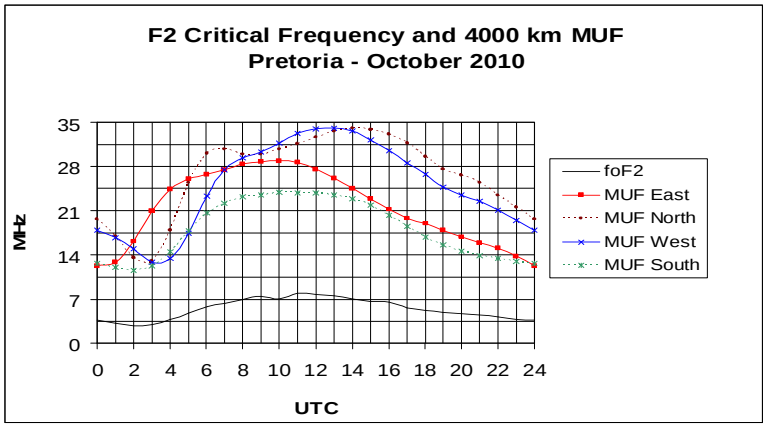
Back in the year dot, when the British invented the three-prong plug and then distributed it around their far-flung empire, I don't think anyone was expected to own the amount of plug-in appliances we do today. How else does one reconcile the fact that their size has always been far larger than necessary for the job at hand? That was all very well for then, but nowadays, thanks to DVD players, decoders, laptops, microwave ovens and the like, wall sockets have become valuable real estate space around our homes.

Crabtree and Radiant's latest SABS-approved Slimline 16A three-prong plug is decidedly more compact than what we're all used to. For example, where once there would only be space for two plugs, now four plugs can be accommodated, ensuring maximum usage of the 100 x 100 mm wall box format. And unlike conventional plugs, they can be wired to allow the cord to exit either the top or bottom – making them ideal for use in tight spaces, behind furniture installations or where unsightly twisting cords are to be avoided. Plus both the unearthed two-pin and the three-pin earthed standards can be accommodated in one socket, thus reducing the need for multiple adaptors.

Safety-wise this plug is a winner. Both the live and neutral pins have 15 mm-long extended sleeves, and the recessed socket has shutters on both contacts, making it impossible for curious little fingers to find their way inside. Each terminal is clearly marked to prevent the user from frying delicate circuitry, and inside the casing there's a guide showing you where to strip the wires to achieve the optimum length.

Plugs are expected to cost about R9 each, and there's an extensive range of adaptors and wall sockets available for those wanting to make the change. Expect them to appear on store shelves soon. For more info visit www.radiant.co.za or www.crabtree.co.za

Editor's note: Many reader's comments are posted on
http://www.popularmechanics.co.za/content/blog/singlepage.asp?id=99
where revelations of actual origin, pro's, con's and perceived shortcomings are posted.



Long Term HF Propagation Prediction for October 2010

courtesy ZS6BTY
(see also our website propagation tab)

DX Operating
The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.
Local Operating
The F2 critical frequency (foF2) is the maximum frequency that will reflect when you transmit straight up. E-layer reflection is not shown.

Zap A 63-year-old man's extraordinary effort to eradicate moles from his property resulted in a victory for the moles. The man pounded several metal rods into the ground and connected them--not to household current, which would have been bad enough--but to a *high-voltage* power line, intending to render the subterranean realm uninhabitable.

Incidentally, the maneuver electrified the very ground on which he stood. He was found dead some time later, at his holiday property. Police had to trip the main circuit breaker before venturing onto the property.

The precise date of the sexagenarian's demise could not be ascertained, but the electric bill may provide a clue.

Resistance is Futile
1999 Darwin Award Nominee
Unconfirmed by Darwin

(1999) A US Navy safety publication describes injuries incurred while doing don't's. One page described the fate of a sailor playing with a multimeter in an unauthorized manner. He was curious about the resistance level of the human body. He had a Simpson 260 multimeter, a small unit powered by a 9-volt battery.

The sailor took a probe in each hand to measure his bodily resistance from thumb to thumb. But the probes had sharp tips, and in his excitement he pressed his thumbs hard enough against the probes to break the skin. Once the salty conducting fluid known as blood was available, the current from the multimeter travelled right across the sailor's heart, disrupting the electrical regulation of his heartbeat. He died before he could record his Ohms.

August 2000: (abridged explanation)

Internal resistance is resistance to electrical power flow that exists inside any power source. It causes the terminal voltage to drop when load (current) increases. You can demonstrate this concept, if you're careful, by monitoring your car battery's terminal voltage, while someone starts up the engine. The reading will be ~13 volts while the engine is off, but during the period where the starter is cranking it will drop to 8-9 volts. The voltage drop is due to the internal resistance of the battery.

This sailor, like all other electricians in training, had already been through a safety class in which one of the excercises is to measure your body's resistance by simply holding the probes between your fingertips. (Most people read 500Kohms to 2Mohms.) Evidently, adding information from the internal resistance class, this sailor wanted to determine his own body's "internal resistance.". So he intentionally pushed the sharpened probe tips through the skin to elimate the rather high skin resistance and get only the "internal resistance". This, of course, caused his death.

How, you might ask, with only a 9V battery? Easy. One of the "rules of thumb" that the Navy teaches is the 1-10-100 rule of current. This rule states that 1mA of current through the human body can be felt, 10mA of current is sufficient to make muscles contract to the point where you cannot let go of a power source, and 100mA is sufficient to stop the heart. Let's look at Ohm's law. Ohm's law (for DC systems - I will not discuss AC here) is written as E=IR, where E is voltage in volts, I is current in Amps, and R is resistance in Ohms.

When we did the experiment in the electrical safety class to determine our body's resistance, we found a resistance of 500K Ohms. Using 9V and 500K Ohms in the equation, we come up with a current of 18 microAmps, below the "feel" threshold of 1mA. However, removing the insulation of skin from our curious sailor here, the resistance through the very good conducting electrolytes of the body is sharply lower. Around 100 ohms, in fact, resulting in a current of 90mA - sufficient to stop our sailor's heart and kill him.

As my electrical safety instructor said, "The reason we now have to teach the electrical safety course to all electricians at least twice per year is because some Joe was bright enough to be the one person in the world who could figure out how to kill himself with a 9V battery."

This sailor apparently did this alone in the lab, and spent a few minutes in ventricular fibrillation. A defibrillator might have saved his life had someone been there to use it