WATTS

06-2010

Year 80 + 6m

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

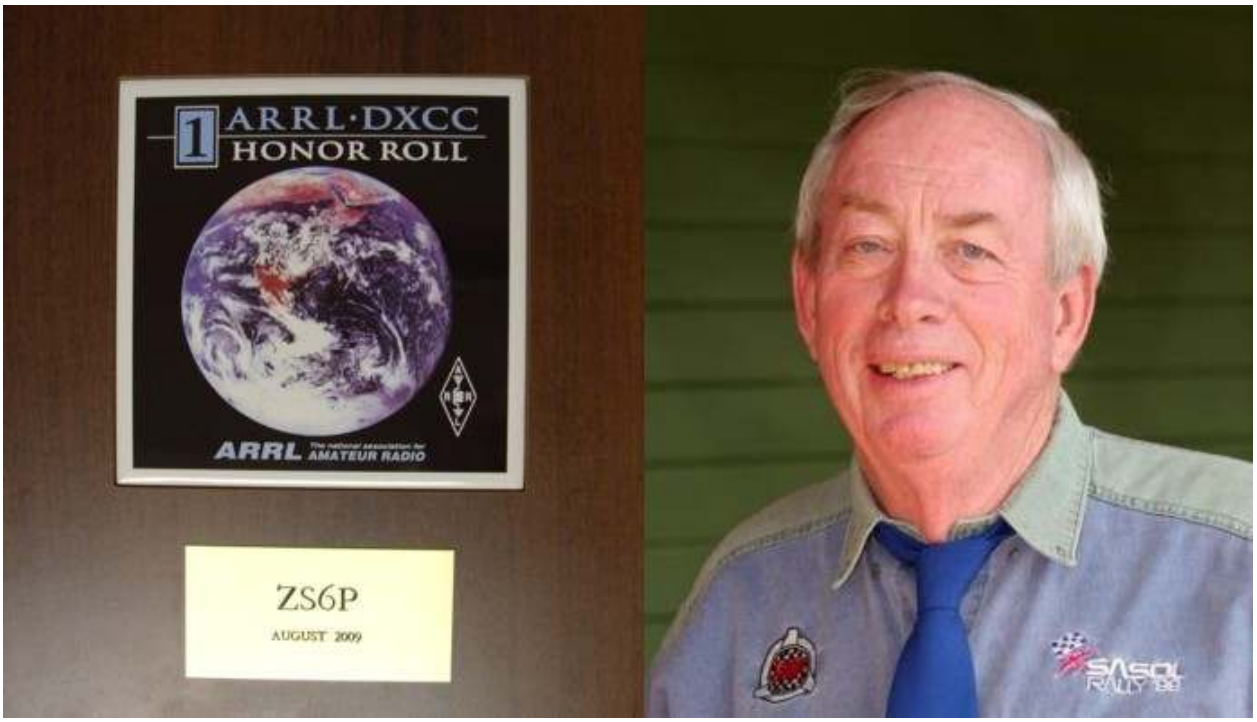
ZR6FD logo

Drukwerk printing ZS6JPL

Papier / Paper ZS6JPL

Congrats to Tjerk ZS6P achieving #1 DXCC Honor Roll status –

338 entities confirmed on phone. It took some 28 years to get there (2½ sun cycles at best…)



In this issue

In hierdie uitgawe

Next Meeting

Date: 12 June 2010
Time: 13:30 for 14:00
PARC Clubhouse,
South Campus,
University of Pretoria.
SE cnr University and
Lynnwood roads.

PARC Management team / Bestuurspan Aug. 2009 - Aug. 2010

Committee members					
Chairman, Rallies, Hamnet	Johan de Bruyn	ZS6JHB	chairman@parc.org.za	012-803-7385	082-492-3689
Viice-Chairman	Alméro Dupisani	ZS6LDP	almero.dupisani@up.ac.za	012-567-3722	082-908-3359
SARL liason, fleamarket					
Treasurer, Secretary	Richard Peer	ZS6UK	treasurer@parc.org.za	012-333-0612	082-651-6556
Repeaters, Technical	Craig Symington	ZS6RH	craigsym@global.co.za		083-259-3233
Contests	Pierre Holtzhausen	ZS6PJH	zs6pjh@telkomsa.net	012-655-0726	082-575-5799
Public Relations	Graham Reid	ZR6GJR	greid@wol.co.za		083-701-0511
Social	Doréén de Bruyn	ZR6DDB		012-803-7385	082-857-9691

Co-opted / Geko-opteer:					
Auditor	Elma Basson				
Newsletter/Kits	Hans Kappetijn	ZS6KR	editor@parc.org.za	012-333-2612	072-204-3991
Asset control	Andre v Tonder	ZS6BRC	andreh.vtonder@absamail.co.za	361-3292	082-467-0287
Klubfasiliteite, vlooimark	Willie Greyling	ZR6WGR	willie@up.ac.za		082-940-2490
Rallies	Johann de Beer	ZR6YV		011-918-1060	082-857-1561
Rallies, Hamnet, Projects	Roy Newton	ZS6XN	newtonr@telkomsa.net	012-547-0280	083-575-7332
Webmaster	Nico v Tonder	ZS6AQ	nico@admin.co.za		082-326-9345
Hiistorian/Awards	Tjerk Lammers	ZS6P	zs6p@iafrica.com	012-809-0006	
Public relations	Thobile Koni	ZS6TKO	toko40@mweb.co.za		082-493-2483
Social	Molly Peer	ZR6MOL	molly@peer.co.za	012-333-0612	

Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 12 May 2010.

Welcome: The secretary acted as chairman and welcomed all present.

Present: See register, 16 members, 1 visitor.

Apologies: 4 as per register. The chairman is handling an IOD case at his work place..

Joys & Sorrows: Peter ZR6PSR is welcomed back. Evan ZS6ELI was welcomed to the meeting. Sig ZS6SIG will be operating as 5Z4EE from Kenya. Nico ZS6AQ has sold his house.

Minutes: The minutes of the previous meeting were in Watts, approved by Brendan ZS6BW and seconded by Peter ZS6PJ.

Matters Arising: None.

Finances: We have a bank balance of R3224.28. The change from greater than R5000 was queried, and was reported as the day in the sun on 27 March. The R1230 debited during January and February was recovered from Virgin Mobile. Vítor ZS6VG suggested that bank charges could be saved if we could maintain a balance of R8000. The report was approved by Vítor ZS6VG and seconded by Vince ZS6BTY.

Membership: There are 114 paid up members of the total of 140.

Rallies: The Sasol rally took place over the weekend of 23/24. It was cold and wet but communications worked well. The weekend of 28/29 May will be the Rally of South Africa in the Ermelo area.

Flea Market: The next PARC flea market will be on Saturday 26 June.

Contests: The contest committee will be meeting at MRK on Saturday, and various point about rule changes and the choice of dates were discussed.. It was suggested that version 2 of the rules be scrapped and that the rules revert to the status as during 2009. Each contest should also list the custodians for that contest. It was noted that PDF logs were not allowed, but paper logs were acceptable.

Projects: Pieter ZS6PA will show us his mobile bakkie setup at the September meeting.

Meeting Dates: It was agreed that the final state of the votes for the meeting date will be made at the AGM in August.

Watts: It was queried whether we still need postal versions of Watts. About 40 copies are sent by post. It was noted that some members do not have and are unlikely to obtain email facilities. Those receiving Watts by post are requested to advise whether they could receive Watts by email and advise of the email address.

Next meeting: The next meeting will be on Saturday 12 June 2010 at about 14:00.

Close at 21:12

Birthdays June Verjaarsdae

Junie Anniversaries Herdenkings

24 Marieta and Roy ZS6MI (39)

02 Elma, LV van Chris ZS6LOG
06 Mari-Louise, dogter van Rita en Sarel ZS6AC
06 Simon ZS6AST
07 Claus ZR6CMU
07 Chantel, dogter van Martie en "JB" ZR6YV
08 Ronel, LV van Pieter ZR6PSR
12 Erna, LV van Whitey ZS6JJJ
14 Hilary ZR6HAP, daughter of Molly ZR6MOL and Richard ZS6UK
17 Lynette ZR6LHT, dogter van Elize en Pieter ZS6PA
20 Malcolm ZR6OLM, son of Retha and Roy ZS6XN
22 Richard ZS6UK
26 Pieter ZR6PSR
27 Emil ZS6EGB
27 Jaq ZS6QA
27 Selma, SW of Joe ZS6TB

Joys and Sorrows | Lief en Leed

Sig ZS6SIG has relocated to Kenya – not Afghanistan as previously reported. His call sign is now 5Z4EE
Nico ZS6AQ is relocating to a smaller in Pretoria.

Diary | Dagboek (UTC times)

June	06	SEANET Contest 12:00-12:00
	06	DARC 10m Digital Contest 11:00-17:00
	12	Portugal Day Contest 00:00-24:00
	13	REF DDFM 6m Contest 16:00-16:00
	16	SARL Youth Day Sprint 11:00-12:00 local
	20	All-Asian CW DX Contest 00:00-24:00
	26	PARC fleamarket at PMC
	26	VHF indaba at NARC 12:00 local
	26-27	His Maj. King of Spain Contest, SSB 12:00-12:00
	27	Marconi Memorial HF Contest 14:00-14:00
	27	SARL Digital Contest 13:00-16:00

PARC SUBS / LEDEGELD 30-06-2010

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 R70
Spouses, pensioners R50

Notice – Kennisgewing

Lede kan nog steeds die sekretaris in kennis te stel van u voorkeur oor watter dae en tye vir u geskik sal wees vir klubvergaderings.
'n Finale besluit sal by ons AJV in Augustus geneem word na gelang van insette ontvang.

Members can still notify the secretary about your preference as to which days and times club meetings should be held.
A final decision will be made at our AGM in August according to inputs received

SARL subs are due end of June.

R360 and R225 for over 65's to:
South African Radio League
ABSA 632005
Account 407 158 8849

Snippets | Brokkies

SARL COUNCIL PORTFOLIOS AND RESPONSIBILITIES FOR 2010-2011:

Dennis Green, ZS4BS – President, HF Manager, Radio ZS;
Mark Zank, ZS6YES - Vice President, RAE and Office Manager;
Henry Chamberlain ZS1AAZ – Secretary, Forum enquiries, Digital modes, IARU liaison;
Louw Erasmus, ZS6LME – Honorary legal advisor;
Laurie Devereux, ZS5DL – Minute secretary and Div 5 Band planning;
Hans van de Groenendaal, ZS6AKV - Regulatory Affairs, Marketing, WRC-12 workgroup, On-the-air activities;
Fred Scheepers, ZS1FCS – Elmer, IARU Monitoring Service and IPHA (Handicapped hams)
Ivan Newman, ZS2ILN – Membership development and Club liaison, deputy web administr.
Gerhard Coetzee, ZS3TG – Youth Events, Education and STARS;
Francois Botha, ZS6BUU – SARL Hamnet and Office logistics;
John Willescroft, ZS6EF - Technology Development;
Willem Weideman, ZS6WWJ – QSL Manager;
Riaan Greef, ZS4PR – VHF/UHF and Microwave Manager;
Frik Wolff, ZS6FZ – Repeater Database.

Appointees:
Rassie Erasmus, ZS1YT – Treasurer;
Tjerk Lammers, ZS6P – Awards Manager;
Richard Seddon, ZS2CLI – Webmaster;
George Honiball, ZS6NE – SARLNEWS and translations;
Geoff Levey, ZS6GRL – Contest Manager;
Derek Gravett, ZS5Y – VHF/UHF Contests.

ZS3B detours to Pretoria on the way to Tzaneen.

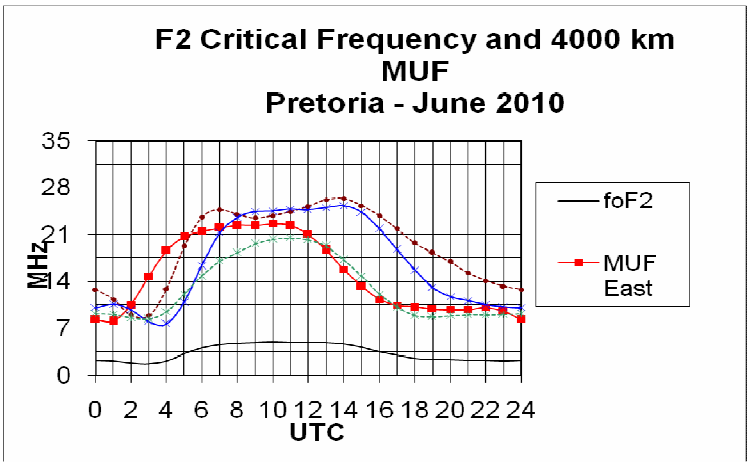
Chris has added a considerable number of places visited to his repertoire and shows them on the maps and souvenir cards on the sides of his 3-wheeler.

Earth Resistance measurement at Hein ZS6Q

4 probes are placed at calculated intervals from the tower. The distance of the probes is a ratio of the tower earth system. The furthest probe is 24 m, then 9 m and the last probes on the tower ground. **Picture: Earth points on the tower ground. Note the 70mm insulated earth wire that runs to the top of the tower. This wire does all the work when lightning strikes.**

One probe is in the neighbour's garden!

One of the lowest measurements as opposed to 0,43 ohms measured in a second test. The equipment is a sophisticated GEO T416 3-point measurement system.



Long Term HF Propagation Prediction for June 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.

Electronic (e-)waste

condensed from Wikipedia

Processing

In developed countries, electronic waste processing usually first involves dismantling the equipment into various parts (metal frames, power supplies, circuit boards, plastics), often by hand. The advantages of this process are the human's ability to recognize and save working and repairable parts, including chips, transistors, RAM, etc. The disadvantage is that the labor is often cheapest in countries with the lowest health and safety standards.

Rapid technology change, low initial cost, and planned obsolescence have resulted in a fast-growing surplus of electronic waste around the globe. An estimated 50 million tonnes of E-waste is produced each year. The USA discards 30 million computers each year and 100 million phones are disposed of in Europe each year. The Environmental Protection Agency estimates that only 15-20% of e-waste is recycled, the rest of these electronics go directly into landfills and incinerators. Surplus electronics have extremely high cost differentials. A single repairable laptop can be worth hundreds of dollars, while an imploded cathode ray tube (CRT) is extremely difficult and expensive to recycle. This has created a difficult free-market economy. Large quantities of used electronics are typically sold to countries with very high repair capability and high raw material demand, which can result in high accumulations of residue in poor areas without strong environmental laws.

Hotspots

Electronic waste is often exported to developing countries.
Increased regulation of electronic waste and concern over the environmental harm which can result from toxic electronic waste has raised disposal costs. The regulation creates an economic disincentive to remove residues prior to export. In extreme cases, brokers and others calling themselves recyclers export unscreened electronic waste to developing countries, avoiding the expense of removing items like bad cathode ray tubes (the processing of which is expensive and difficult).

Defenders of the trade in used electronics say that extraction of metals from virgin mining has also been shifted to developing countries. Hard-rock mining of copper, silver, gold and other materials extracted from electronics is considered far more environmentally damaging than the recycling of those materials. They also state that repair and reuse of computers and televisions has become a "lost art" in wealthier nations, and that refurbishing has traditionally been a path to development. South Korea, Taiwan, and southern China all excelled in finding "retained value" in used goods, and in some cases have set up billion-dollar industries in refurbishing used ink cartridges, single-use cameras, and working CRTs. Refurbishing has traditionally been a threat to established manufacturing, and simple protectionism explains some criticism of the trade.

Opponents of surplus electronics exports argue that lower environmental and labor standards, cheap labor, and the relatively high value of recovered raw materials leads to a transfer of pollution-generating activities, such as burning of copper wire. In China, Malaysia, India, Kenya, and various African countries, electronic waste is being sent to these countries for processing, sometimes illegally. Many surplus laptops are routed to developing nations as "dumping grounds for e-waste".[2] Because the United States has not ratified the Basel Convention or its Ban Amendment, and has no domestic laws forbidding the export of toxic waste, the Basel Action Network estimates that about 80% of the electronic waste directed to recycling in the U.S. does not get recycled there at all, but is put on container ships and sent to countries such as China.[9][14][15][16] This figure is disputed as an exaggeration by the EPA, the Institute for Scrap Recycling Industries, and the World Reuse, Repair and Recycling Association[*citation needed*].

Guiyu in the Shantou region of China, Delhi and Bangalore in India as well as the Agbogbloshie site near Accra, Ghana have electronic waste processing areas.[9][17][18] Uncontrolled burning, disassembly, and disposal can cause a variety of environmental problems such as groundwater contamination, atmospheric pollution, or even water pollution either by immediate discharge or due to surface runoff (especially near coastal areas), as well as health problems including occupational safety and health effects among those directly involved, due to the methods of processing the waste. Thousands of men, women, and children are employed in highly polluting, primitive recycling technologies, extracting the metals, toners, and plastics from computers and other electronic waste. Recent studies show that 7 out of 10 children in this region have too much lead in their blood.[*citation needed*]

Proponents of the trade say growth of internet access is a stronger correlation to trade than poverty. Haiti is poor and closer to the port of New York than southeast Asia, but far more electronic waste is exported from New York to Asia than to Haiti. Thousands of men, women, and children are employed in reuse, refurbishing, repair, and remanufacturing, sustainable industries in decline in developed countries. It is held that denying developing nations access to used electronics denies them affordable products and internet access.

Opponents of the trade argue that developing countries utilize methods that are more harmful and more wasteful. An expedient and prevalent method is simply to toss equipment onto an open fire, in order to melt plastics and to burn away unvaluable metals. This releases carcinogens and neurotoxins into the air, contributing to an acrid, lingering smog. These noxious fumes include dioxins and furans.[19] Bonfire refuse can be disposed of quickly into drainage ditches or waterways feeding the ocean or local water supplies.[16][20]

In June 2008, a container of electronic waste, destined from the Port of Oakland in the U.S. to Sanshui District in mainland China, was intercepted in Hong Kong by Greenpeace.[21] Concern over exports of electronic waste were raised in press reports in India,[22][23] Ghana,[24][25][26] Ivory Coast,[27] and Nigeria.[28]

Alternative processing

In alternative bulk systems rugged, high capacity shredders crush and shred hard drives, office equipment, televisions, digital media, appliances, electronics, contraband, scrap metal and more into unusable and unidentifiable pieces. A hopper conveys material for shredding into a sophisticated mechanical separator, with screening and granulating machines to separate constituent metal and plastic fractions, which are sold to smelters or plastics recyclers. Such recycling machinery is enclosed and employs a dust collection system. Most of the emissions are caught by scrubbers and screens. Magnets, eddy currents, and trommel screens are employed to

separate glass, plastic, and ferrous and nonferrous metals, which can then be further separated at a smelter. Leaded glass from CRTs is reused in car batteries, ammunition, and lead wheel weights,[19] or sold to foundries as a fluxing agent in processing raw lead ore. Copper, gold, palladium, silver, and tin are valuable metals sold to smelters for recycling. Hazardous smoke and gases are captured, contained, and treated to mitigate environmental threat. These methods allow for safe reclamation of all valuable computer construction materials.[16] Hewlett-Packard product recycling solutions manager Renee St. Denis describes its process as: "We move them through giant shredders about 30 feet tall and it shreds everything into pieces about the size of a quarter. Once your disk drive is shredded into pieces about this big, it's hard to get the data off."[32]

An ideal electronic waste recycling plant combines dismantling for component recovery with increased cost-effective processing of bulk electronic waste.

Reuse is an option to recycling because it extends the lifespan of a device. Devices still need eventual recycling, but by allowing others to purchase used electronics, recycling can be postponed and value gained from device use.

Electronic waste substances

Some computer components can be reused in assembling new computer products, while others are reduced to metals that can be reused in applications as varied as construction, flatware, and jewelry.[32]

Substances found in large quantities include epoxy resins, fiberglass, PCBs, PVC (polyvinyl chlorides), thermosetting plastics, lead, tin, copper, silicon, beryllium, carbon, iron and aluminium. Elements found in small amounts include cadmium, mercury, and thallium.[33] Elements found in trace amounts include americium, antimony, arsenic, barium, bismuth, boron, cobalt, europium, gallium, germanium, gold, indium, lithium, manganese, nickel, niobium, palladium, platinum, rhodium, ruthenium, selenium, silver, tantalum, terbium, thorium, titanium, vanadium, and yttrium.

Almost all electronics contain lead and tin (as solder) and copper (as wire and printed circuit board tracks), though the use of lead-free solder is now spreading rapidly. The following are ordinary applications:

Hazardous

Americium: smoke alarms (radioactive source).
Mercury: fluorescent tubes (numerous applications), tilt switches (pinball games, mechanical doorbells, thermostats). With new technologies arising, the elimination of mercury in many new-model computers is taking place.[34]
Sulfur: lead-acid batteries.
PCBs: prior to ban, almost all 1930s–1970s equipment, including capacitors, transformers, wiring insulation, paints, inks, and flexible sealants.
Cadmium: light-sensitive resistors, corrosion-resistant alloys for marine and aviation environments, nickel-cadmium batteries.
Lead: old solder, CRT monitor glass, lead-acid batteries, some formulations of PVC.[35] A typical 15-inch cathode ray tube may contain 1.5 pounds of lead,[1] but other CRTs have been estimated as having up to 8 pounds of lead.[19]
Beryllium oxide: filler in some thermal interface materials such as thermal grease used on heatsinks for CPUs and power transistors,[36] magnetrons, X-ray-transparent ceramic windows, heat transfer fins in vacuum tubes, and gas lasers.
Polyvinyl chloride Third most widely produced plastic, contains additional chemicals to change the chemical consistency of the product. Some of these additional chemicals called additives can leach out of vinyl products. Plasticizers that must be added to make PVC flexible have been additives of particular concern.

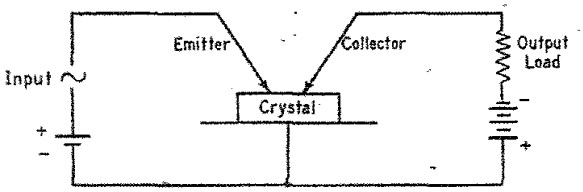
Generally nonhazardous

Tin: solder, coatings on component leads.
Copper: copper wire, printed circuit board tracks, component leads.
Aluminium: nearly all electronic goods using more than a few watts of power (heatsinks), electrolytic capacitors.
Iron: steel chassis, cases, and fixings.
Germanium: 1950s–1960s transistorized electronics (bipolar junction transistors).
Silicon: glass, transistors, ICs, printed circuit boards.
Nickel: nickel-cadmium batteries.
lithium: lithium-ion batteries.
Zinc: plating for steel parts.
Gold: connector plating, primarily in computer equipment.

QST 1948

The "Transistor" — an Amplifying Crystal

THERE was a time in the early days of radio when the "oscillating crystal" could be catalogued with sky hooks, left-handed monkey wrenches and striped paint, because no one knew how to amplify a signal with a galena, silicon or other crystal. All this is changed by the recent Bell Telephone Laboratories' announcement of the "Transistor," a small germanium-crystal unit that can amplify signals, and hence be made to oscillate.



Housed in a small metal tube less than one inch long and less than a quarter inch in diameter, the Transistor has no filament, no vacuum, and no glass envelope, and is made up only of cold solid substances. Two "catwhisker"-point contacts are made to a surface of the small germanium crystal, spaced approximately 0.002 inch apart.

The Transistor shown is connected as an amplifier in the accompanying sketch. The contact on the input side is called the "emitter" and the output contact is called the "collector" by the Bell Labs. A small positive bias of less than one volt is required on the emitter, and the output circuit consists of a negative bias of 20 to 30 volts and a suitable load. The input impedance is low (100 ohms or so), and the output impedance runs around 10,000 ohms.

In operation, a small static current flows in both input and output circuit. A small current change in the emitter circuit causes a current change of about the same magnitude in the collector circuit. However, since the collector (output) circuit is a much higher-impedance circuit, a power gain is realized. Measuring this gain shows it to be on the order of 100, or 20 db., up through the television video range (5 Mc. or so). The present upper-frequency limit is said to be around 10 Mc., where transit-time effects limit the operation.

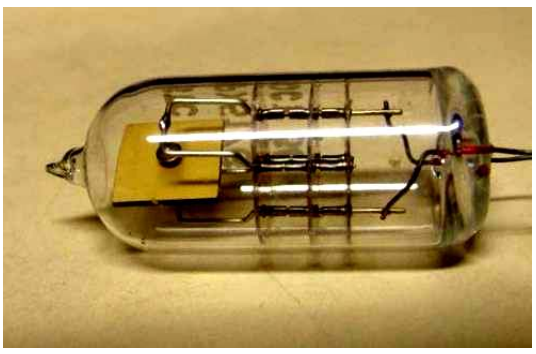
The Bell Labs have demonstrated complete broadcast-range superhet receivers using only Transistors for oscillator and amplifier functions (with a 1N34 second detector and selenium power rectifiers). An audio output of 25 milliwatts was obtained by using two Transistors in a push-pull connection. However, it seems likely that in the near future Transistors will find their maximum application in telephone amplifiers and large-scale computers, although their small size and zero warm-up time may make them very useful in hearing aids and other compact amplifiers.

It doesn't appear that there will be much use made of Transistors in amateur work, unless it is in portable and/or compact audio amplifiers. The noise figure is said to be poor, compared to that obtainable with vacuum tubes, and this fact may limit the usefulness in some amateur applications. These clever little devices are well worth keeping an eye on. — *B. G.*

USEFUL ??

WILL THIS "THING" EVER TAKE OFF ?

SEEMS NOT !



Relic from 45 years ago.

Found in a junk lot .
An STC manufactured crystal of unmarked frequency (must be quite low) with date 1965 clearly visible.
Glass encased crystals filled with inert vacuum/nitrogen helium are still available today mostly in smaller format.