WATTS 2020-04

Year 90 + 04m

Monthly Newsletter of the Pretoria Amateur Radio Club
Maandelikse Nuusbrief van die Pretoria Amateur Radio Klub

PARC, PO Box 73696, Lynnwood Ridge 0040, RSA
http://www.parc.org.za zs6pta@zs6pta.org.za

Bulletins : 145.725 MHz : Sundays from 08h45 / Sondae vanaf 08h45
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz and Echolink. Activated frequencies are announced prior to bulletins
Swopshop : 2m and 7.066 MHz live on-air after bulletins
Bulletin repeats on Mondays / herhalings op Maandae : 2m 19h45

The front page photograph for this month is of the founder members of the Pretoria Amateur Radio Club at the Union Buildings, kindly supplied by Tjerk Lammers ZS6P/ZS1J. More on page 5.

In This Issue / In Hierdie Uitgawe

Club Meetings / Klub Vergaderings

Club Committee Meeting :

The date of the next Meeting for the 2020/21 PARC Committee will be announced in due course

PARC Committee Members : 2019 – 2020 / PARK Komiteelede : 2019 - 2020

Name & Callsign	Portfolio/s	Email Adress	Tel No	Mobile No
Louis de Wet ZS6SK	Chairman, Watts, SARL, ICASA	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
Graham Reid ZS6GJR	Vice Chairman, Treasurer, Website	greid@wol.co.za	012-667-2720	083-701-0511
Johan de Bruyn ZS6JHB	Rallies, Repeaters & Membership	zs6jhb@gmail.com	012-803-9418	079-333-4107
Irene Myburgh ZS6IEA	Club Secretary & Social	Irene@srsa.gov.za	012-304-5109	082-462-6001
Albert Schreuder ZS6SE	Contests, Social & Taxation	albert.schreuder.za@gmail.com	012-361-6133	082-562-3825

PARC Co-opted Members : 2019 – 2020 / PARK Ge-köopteerde Lede : 2019 - 2020

Name & Callsign	Portfolio/s	Email Adress	Tel No	Mobile No
Alméro Du Pisani ZS6LDP	Flea-markets, SARL Bulletins	almero.dupisani@up.ac.za	012-420-3779	083-938-8955
Tony Crowder ZS6CRO	Auditor	tcrowder@telkomsa.net	011-672-3311	
Pierre Holtzhausen ZS6PJH	Contests	zs6pjh@gmail.com		082-575-5799
Pieter Myburgh ZS6PAM	Repeaters	wooden@mweb.co.za		076-140-7562
Hans Kappetijn ZS6KR (Hon.)	SARL Bulletins, Swop Shop	QRVservices@gmail.com	012-333-2612	072-204-3991
John Minter ZS6LED	RAE Training, Technical	john.minter.za@gmail.com	012-349-0019	083-291-5422

Birthdays and Anniversaries / Verjaarsdae en Huweliks Herdenkings

Member's Birthdays April 2020 / Lede Verjaarsdae April 2020

10 Nic Louw ZS6NWL
16 Andre Roux ZS6ARX
19 Etienne Naude ZS6EFN
24 Jaco Steyn ZSL6119

Spouse's April 2020 / Gades April 2020

10 Joey, spouse of Graham Reid ZS6GJR
15 Joanne, spouse of Evan Seligmann ZS6ELI
16 André ZS6ARX, gade van Marike Roux ZS6MRX
22 Marita, gade van Roy Alexander ZS6MI
27 Ronel, gade van Emil Bohme ZS6EGB
29 Heather, spouse of Vincent Harrison ZS6BTY

Anniversaries April 2020 / Herdenkings April 2020

01 Ronel en Dawid Jansen van Rensburg ZS6VS
06 Lyn en André van Tonder ZS6BRC (Erelid)
10 Joanne and Evan Seligmann ZS6ELI
30 Joey and Graham Reid ZS6GJR

Member's Birthdays May 2020 / Lede Verjaarsdae Mei 2020

03 Andries Schoombee ZS6SCH
06 Christopher Coetzee ZU6CC
14 Johan Momberg ZS6BPB
17 Vincent Harrison ZS6BTY
21 Lukas Dorfling ZS6LMD
24 Sybrand van der Spuy ZS6SY
25 Tjerk Lammers (Hon Mem) ZS6P / ZS1J
26 Vitor Gouveia ZS6VG
30 Dave Gough DAVEP
31 David Botha ZS6O
31 George Ellis ZS6GWE

Spouse's May 2020 / Gades Mei 2020

No spouse's birthdays during May

Anniversaries May 2020 / Herdenkings Mei 2020

01 Ria and Peter Smith-Curren ZS6PJ

Lief en Leed /Joys and Sorrows

Tydens onlangse bulletins is berig dat Pierre Britz ZR6ADZ operasies op sy lewer en niere ondergaan het, en dat dit met tye nie so goed gegaan het nie. Ons het wel met verlede week se Sondag bulletin verneem dat hy tuis aansterk en inderdaad ook na die bulletin geluister het. Graag wil PARK vir Pierre en sy gade, Dienkie, alle sterkte toewens met sy herstel.

PARK het verneem dat dit nie goed gaan met die gesondheid van Simon Prinsloo ZS6SLP. Graag wil PARK vir Simon en sy gade alle sterkte en beterskap toewens.

PARC Membership Fees / PARK Ledegelde

For the 2019-2020 year, there will be no increases in Club Membership fees. Club Fees therefore remain at R160 for Ordinary Members, and R60 for Pensioners and Spouse. Vir die 2019-2020 jaar sal daar geen toenames in die Klub Lidmaatskap gelde wees nie. Dus bly die gelde op R160 vir Gewone Lede, en R60 vir Pensionarisse en Gade.

PARC SUBS : PARK LEDEGELD : FROM / VANAF : 30-06-2018			
Bank	First National Bank	Ordinary Members / Gewone Lede : R160 Spouses / Pensioners : R60	**Your call sign must appear as statement text!**
Branch Code	25 20 45		
Account No	546 000 426 73		
Please remit your subs in time to our Treasurer, or pay per transfer into the PARC account Betaal asb. u ledegelde betyds aan ons Tesourier, of betaal per oorplasing in die PARC rekening			

Please Note : If your Club fees are not paid up to date, birthday details cannot be displayed in Watts

PARC Bulletin Roster / PARK Bulletin Rooster

PARC Bulletins are presented on Sunday mornings at approximately 08h45, after the SARL Bulletins in English and Afrikaans, from 08h15. The Bulletin Presenters for the following two months are presented below. Please do contact the applicable presenter beforehand if you wish to make a contribution to the Bulletin. PARC Bulletins are broadcast on the 2-meter repeater on 145.725 MHz, and 70 cm on 438.025 MHz. Relays are done on 7.060 MHz by Hans Kappetijn ZS6KR and on Echolink by Johan Lehman ZS6JPL. A re-broadcast of the Bulletin is done the following Monday evening at 19h45 by Hans ZS6KR.

PARK Bulletins word op Sondag oggende aangebied om 08h45, na die SARL Bulletins in Engels en Afrikaans, vanaf 08h15. The Bulletin aanbieders vir die volgende twee maande word onder aangedui. Kontak gerus die toepaslike Bulletin leser indien u 'n bydrae tot die Bulletin wil maak. PARK Bulletins word uitgesaai op die 2-meter herhaler op 145.725 MHz, en 70cm op 438.205 MHz. Herleidings word gedoen op 7.060 MHz deur Hans Kappetijn ZS6KR, en op Echolink deur Johan Lehman ZS6JPL. 'n Heruitsending van die Bulletin geskied die opvolgende Maandag aand om 19h45 en word behartig deur Hans ZS6KR.

PARC Bulletin Presenters : January – March 2020			
Date	**Presenter**	**Date**	**Presenter**
~~8 March 2020~~	~~Louis de Wet ZS6SK~~	26 April 2020	Johan de Bruyn ZS6JHB
15 March 2020	Albert Schreuder ZS6SE	3 May 2020	Louis de Wet ZS6SK
22 March 2020	Alméro Du Pisani ZS6LDP	10 May 2020	Albert Schreuder ZS6SE
29 March 2020	Johan de Bruyn ZS6JHB	17 May 2020	Alméro Du Pisani ZS6LDP
5 April 2020	Louis de Wet ZS6SK	24 May 2020	Johan de Bruyn ZS6JHB
12 April 2020	Albert Schreuder ZS6SE	31 May 2020	Louis de Wet ZS6SK
19 April 2020	Alméro Du Pisani ZS6LDP	7 June 2020	Albert Schreuder ZS6SE

PARC Fleamarket Dates 2020 / PARK Snuffelmark Datums 2020

The PARC Flea Market dates for 2020 will be on:
The PARK Snuffelmark datums vir 2020 sal wees op:

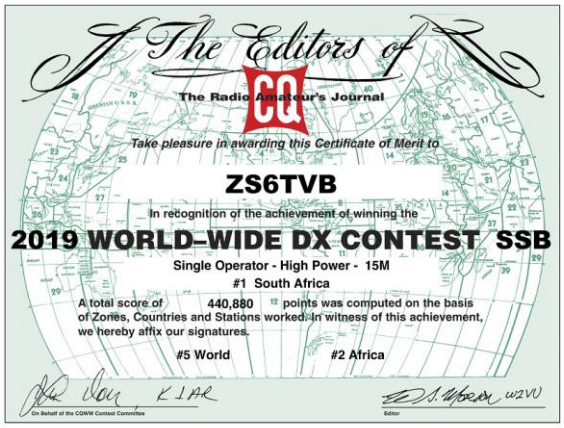
2 May ; 1 August ; 31 October
(From 10h00 / Vanaf 10h00)

To book a table, please do contact: / Om 'n tafel te bespreek, kontak gerus:
Alméro Du Pisani ZS6LDP at 083-938-8955 or almero.dupisani@up.ac.za

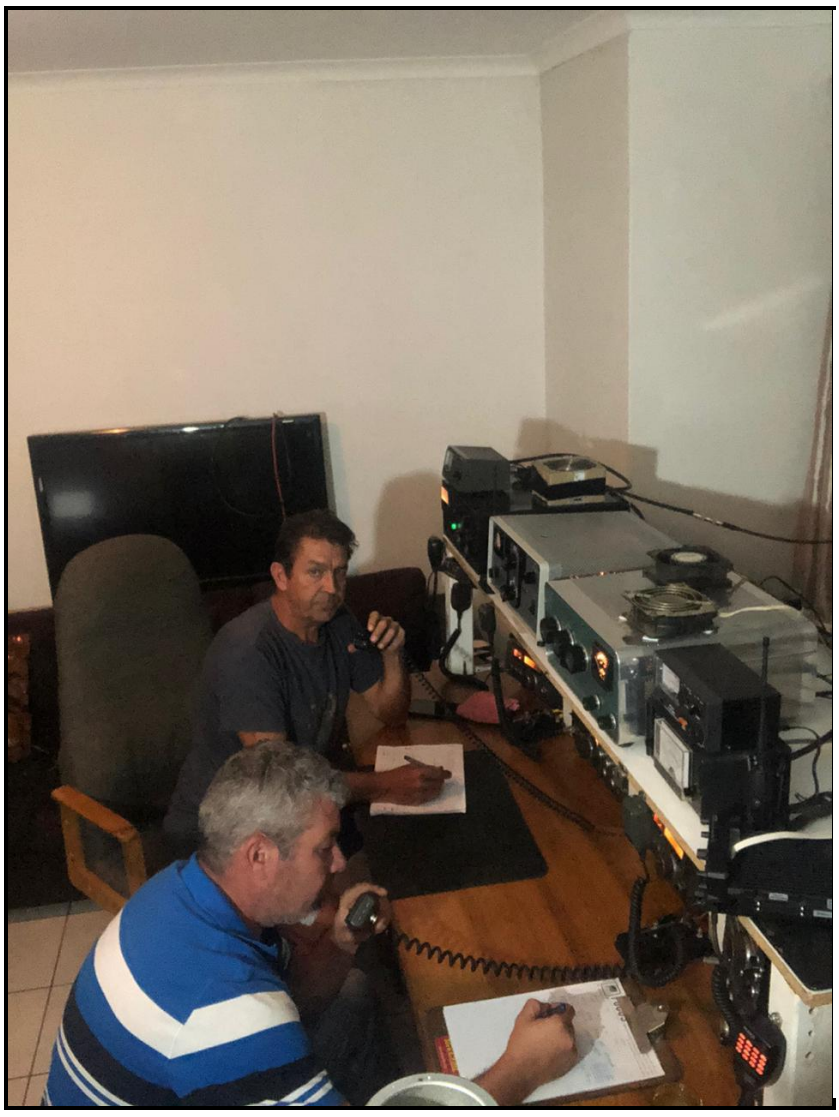
Diary of Contests & Events / Dagboek van Kompetisies en Gebeure

Contests and Events – April 2020 / Kompetisies en Gebeure – April 2020 (UTC Times)	
02	**SARL 80m QSO Party: 17h00Z – 20h00Z**
03 - 04	**SARL National Convention : postponed (See SARL website)**
04 - 05	SP DX Contest: 15h00Z – 15h00Z
11 - 12	JIDX CW Contest: 07h00Z – 13h00Z
12	Hungarian Straight Key Contest: 15h00Z – 17h00Z
18	World Amateur Radio Day
17 - 18	Holyland DX Contest: 21h00Z – 21h00Z
18 - 19	YU DX Contest: 07h00Z – 06h59Z
25 – 26	10-10 International Spring Contest, Digital: 00h01Z – 23h59Z
25 – 26	SP DX RTTY Contest: 12h00Z – 12h00Z
25 – 26	Helvetia Contest: 13h00Z – 12h59Z
Contests and Events – May 2020 / Kompetisies en Gebeure – Mei 2020 (UTC Times)	
02 - 03	10-10 International Spring Contest, CW: 00h01Z – 23h59Z
02 - 03	ARI International DX Contest: 12h00Z – 11h59Z
02	**Antique Wireless Association: AM Valve QSO Party**
03	**Antique Wireless Association: SSB Valve QSO Party**
09 - 10	**SARL VHF/UHF Digital Contest**
09 - 10	VOLTA WW RTTY Contest: 12h00Z – 12h00Z
16	**Radio Amateur Examination: (Consult SARL website for more information)**
16 - 17	His Majesty King of Spain Contest, CW: 12h00Z – 12h00Z
16 - 17	Dayton Hamvention (Consult official website for information)
17	**ZS3 Sprint**
18 - 22	**Spaceops 2019 Conference, Cape Town (Consult website)**
20	**South African Radio League: 95th Birthday**
30 - 31	CQ WW WPX Contest, CW: 00h00Z – 23h59Z

The Pretoria Amateur Radio Club does not accept responsibility for the accuracy of contest details listed above. For verification and more information, please visit the SARL website, www.sarl.org.za , as well as the WA7BNM international contest calendar at the following website: http://hornucopia.com



The Pretoria Amateur Radio Club hereby again wishes to congratulate Theo Bresler ZS6TVB with his magnificent achievement during the 2019 World-Wide DX Contest SSB. For the past three years Theo has achieved top positions locally and on an international level. Theo achieved #1 position for South Africa, #2 in Africa, and #5 in the World. PARC sincerely wishes Theo all the best with his future participation in contests.



Above: Founder Members of the Pretoria Amateur Radio Club [circa. 1920]. Photograph kindly supplied by Tjerk Lammers (Hon. Mem) ZS1P/ZS1J. If anyone has information available on any of the Members, please do contact Louis de Wet ZS6SK (see p2 for contact details).

Onder: Tydens die afgekondigde periode van inperking het Gerrie Leonard ZS6GTK en Zack Pienaar ZR6ZAK hul radio opstelling beskikbaar gestel om hulp te verleen waar ookal nodig sou wees gedurende hierdie tyd. Pretoria Amateur Radio Klub bedank hulle opreg vir hul uitsonderlike amateur radio gees, en moedig alle lede aan om per radio by te staan tydens enige moontlike toekomstige gebeurlikhede.

Review of the YAESU FTDX101D HF and 6-Meter Transceiver

I recently received a link to a YouTube video on the features of the Yaesu FTDX101D transceiver from my life-long friend Sakkie Coetzee ZS6BPA. This prompted me to conduct a short review on the history of the well-known FT 101 series and an evaluation on how this relatively new FTDX101D transceiver has evolved technologically.

Appearing in 1970 on the market, the FT-101 (Figure 1) gained rapid popularity amongst radio amateurs for its quality of signal, flexibility and professional attention to workmanship and design[1]. A modular design consisting of ten solid state circuit boards on a common chassis made this transceiver a strong performer. However, the first series of FT-101 transceivers suffered from intermodulation when strong signals were present during receive, and generated spurs on transmit[1]. Following recommendations from various radio hams, the Yaesu factory responded with a major modification which improved the quality of receivers of the early FT-101 models. The FT-101 covers 160 through 10 meters in USB, LSB, CW and AM modes, with frequency covering including 3.5–4, 7–7.5, 10-10.5 (receive only), 14-14.5, 21-21.5, 27-27.5 (receive only), and 28-30 MHz. The analog display provides a 2 kHz accuracy, and other features include a noise blanker, VOX and IF output. Except for the finals and driver stage, the transceiver boasts solid state components and 130W of output[2].

Other improvements followed, with the FT-101B having the added 160-meter band incorporated. The FT-101E model was a further improvement, having the addition of a "RF" speech processor. Having all previous problems solved, the "E" model was fully refined and was the most popular model of the FT-101 series. The "F" model was the last in the series and contained all of the modifications, improvements and options throughout the series[1]. Due to fierce competition in the HF market, with WARC bands on the horizon, IF shift, AF Notch/Peak, and digital readouts, the FT-101 series moved quickly to the analog "Z" model, and then to the digital "ZD" models (Figure 2)[1]. The FT-101 series lasted for 6 years, from 1971 to 1977. This period was described as an exciting time for FT-101 owners[1]. For more detailed information on the history of the FT-101 series, the FT-101 transceiver homepage of Al, NW2M can be consulted[1].

Figure 1: Yaesu FT-101 Transceiver

Figure 2: Yaesu FT-101 ZD Transceiver

During the 2018 Hamvention in Xenia, Ohio, the Yaesu FTDX101D made its first appearance. A review article by Joel R. Hallas, W1ZR, which appeared in the November 2019[3] issue of QST magazine, provides a most comprehensive overview of the features of this transceiver. This article will present a short selection of the main features of this transceiver. The FTDX101D is a 100W, 160-6 meter SSB, CW, AM, FM and digital-mode transceiver, while the 200W FTDX101MP is also available[3].

The FTDX101D incorporates two independent, high performing receivers with 2 KHz spaced, third order intermodulation measuring 110 dB. This rejection is handy when there are multiple strong signals in a packed band during contests and DX pileups[3].

Figure 3: The Yaesu FTDX101D showing dual band reception on the color display

The FTDX101D (Figure 3) uses a dual-conversion down converting architecture, where the first conversion is to approximately 9 MHz, where the roofing filters are located. This is achieved by utilizing roofing filter bandwidths of 600 Hz, 3 kHz and 12 kHz. The second conversion is to 24 kHz to a "narrowband SDR receiver", where digital signal processing (DSP) provides the operational bandwidth (narrower than the roofing filter) and many other signal processing functions[3]. The transceiver also features an adjustable, and sharp capacitor-tuned RF pre-selector for the main receiver, which can be moved across the band-pass to provide an additional aid to eliminate interfering signals[3].

The main and sub receivers can be locked together on different frequencies and receivers on different antennas for diversity reception. They can also operate completely independent of each other on the same or different bands[3,4]. A third independent receiver is included for use by the spectrum scope. This receiver uses direct-sampling SDR architecture to provide wideband coverage, up to 1 MHz slices of spectrum[3].

A large number of useful features are available for CW operators, with full- and semi-break-in operations being supported. A CW decoder is also available, displaying decoded text on the 18cm color TFT display. The two receivers can be set independently to the default CW bandwidths of 50, 100, 250, 400, 500, 800, 1000 or 3000 Hz[3]. An on-screen CW tuning indicator graphic assists the operator to manually tune in a received station for the selected CW offset[3].

Several options for digital-mode operations are available by the FTDX101D. An internal decoder for RTTY and BPSK or QPSK modes. Through the USB port, a connection can be set up to the radio's internal sound card to most of the digital modes, which include FT8, PSK or AFSK RTTY for example. If you wish to consult a comprehensive video overview of the FTDX101D, please consult the YouTube link below:

https://www.youtube.com/watch?v=avS51gRJ71s&t=570s

Overview from literature sources by Louis de Wet ZS6SK

References:

[1]NW2M Presents: The FT-101 HF Transceiver Home Page. https://www.qsl.net/nw2m/

[2]Universal-radio.com website: https://www.universal-radio.com/catalog/hamhf/ft101.html

[3]Hallas, J.R. 2019. Product Review: Yaesu FTDX101D HF and 6-Meter Transceiver. QST Magazine. November 2019. 49-56.

[4]Yaesu.com website: https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=102&encProdID=959169DE998192AB87295E90077D740D&DivisionID=65&isArchived=0

What is a Virus and a perspective of the 1918 Spanish Flu : Part 1

Originally, before the microbial world was discovered, the term “virus” was used to denote any agent which was capable to induce disease in living organisms. This word if from the Latin language meaning “venom, poison, slime or poisonous fluid”[1]. Up to the nineteenth century, when specific agents of disease were discovered, ideas concerning the causes of infectious diseases in humans, animals and plants were vague and abstract. They were recognized at the end of the nineteenth century as infectious agents smaller than bacteria, also known as “filterable agents”[1,2]. D.J. Ivanowsky found in 1892 that an infectious extract from tobacco plants with mosaic disease retained its infectivity after passage through a filter able to prevent the passage of bacteria, hence the term “filterable agents”[1]. This was followed by same demonstrations which illustrated the presence of the agents for foot-and-mouth disease in 1898, fowl leucosis in 1908 and for chicken sarcoma in 1911. In 1917, viruses which were able to affect bacteria, the so-called bacteriophages were discovered, and made available an important model system for research and developments in basic virology[2].

Subsequent behavioral laboratory studies concluded that viruses were obligate intracellular parasites, only able to multiply within host cells. However, the Dutch microbiologist Martinus Beijerinck, who was one of the founders of virology published his results in 1898 that the virus of the tobacco mosaic disease (Figure 1) could be precipitated from a suspension by alcohol without losing its infectious power. These properties are not characteristic of living organisms, and Beijerinck concluded that a virus was not a living organism, but rather a “fluid infectious principle”[1]. In 1935, the American biochemist and virologist Wendell Stanley showed that the infectious capability of the tobacco mosaic virus could be crystallized, and that the crystals consisted largely of protein[1]. This was at first interpreted that a virus was a protein molecule, but proved to be over simplified. It was later found that in addition to protein, the virus contained a much smaller, but constant amount of ribonucleic acid (RNA). It hence became more clear that the infectious principle was therefore not a protein molecule only, but a molecular complex consisting of protein and nucleic acid. The latter is specific to each virus and may either be RNA or deoxyribonucleic acid (DNA)[1].

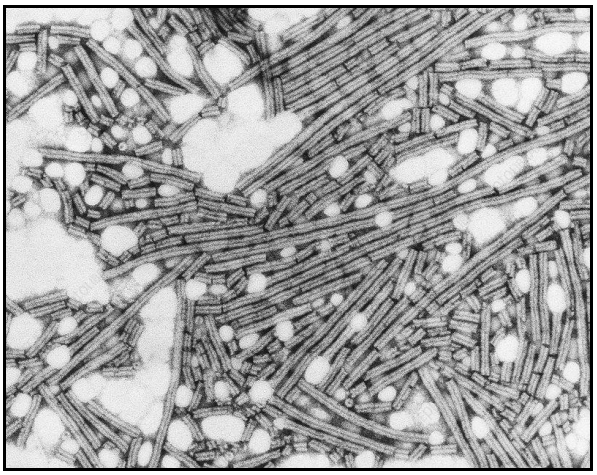


Figure 1: Tobacco mosaic virus *(TEM)

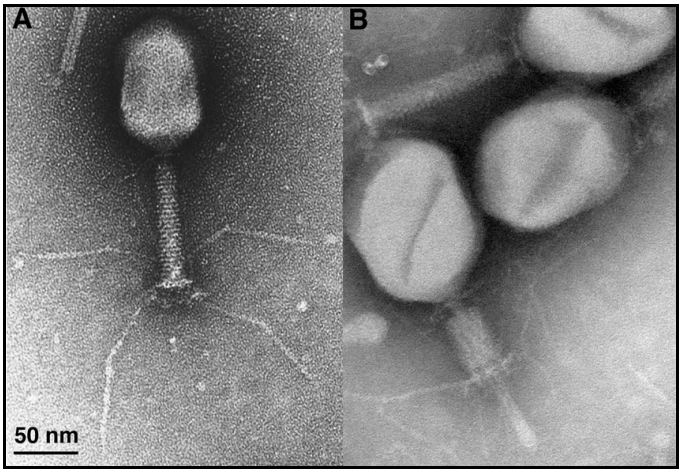


Figure 2: Bacteriophage T4

***TEM: Transmission Electron Microscope photograph**

After the discovery by Stanley, extensive debates followed on whether the tobacco mosaic virus (and other viruses) were living organisms, or merely nucleoprotein molecules[2]. When the concept of *life* is viewed in an operational sense, it is a complex set of processes resulting from the actuation of the instructions encoded in the genes of living organisms. However, viral genes are only activated after the viral genome has entered a susceptible cell and hence, viruses may be considered alive when they replicate in cells.

Outside cells, viruses (virions) are metabolically inert chemicals, and can therefore, depending on the context, may viruses be regarded both as exceptionally simple microbes, and as complex chemical compounds. There is a great number and variety of human, animal and plant viruses sharing the environment with us, and this cannot be discussed in this context. However, a number of particular human viruses have made their appearances and have been identified the past hundred years, some of them treatable, and some of them extremely dangerous such as the Ebola and Marburg viruses. A selection of TEM (Transmission Electron Microscope) microphotographs are shown in Figures 3-8. For more information on these, and other viruses, the website of the Centers for Disease Control (CDC) can be consulted.

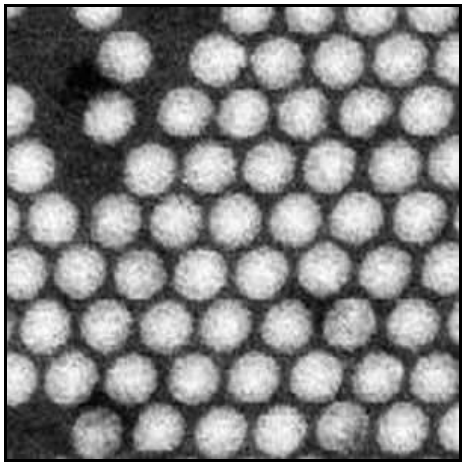


Figure 3: Poliovirus

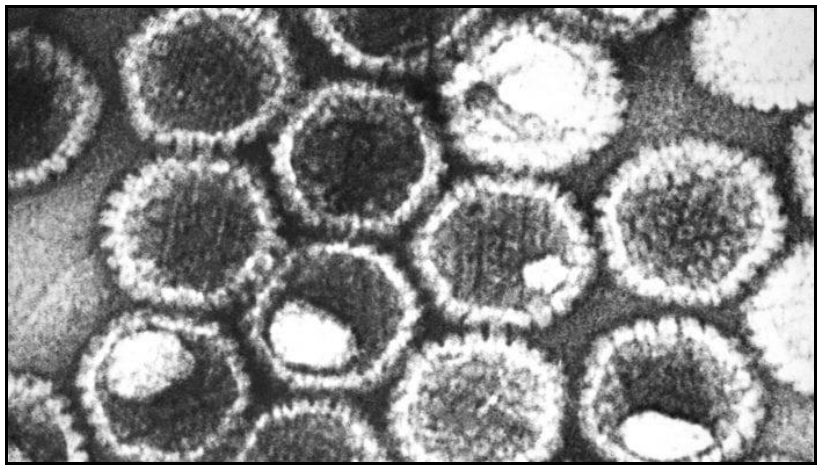


Figure 4: Herpes virus

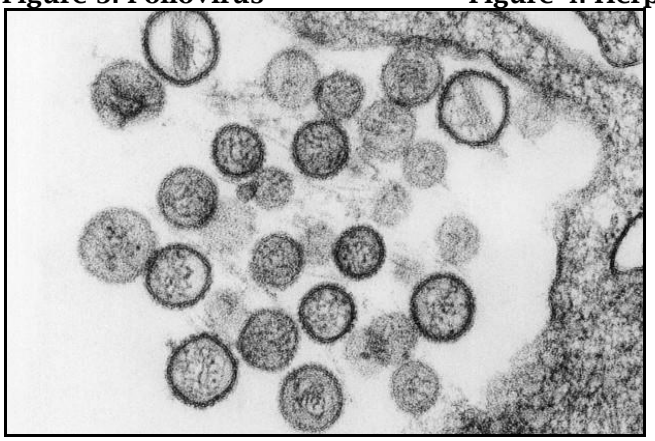


Figure 5: Hantavirus

Figure 6: Marburg virus

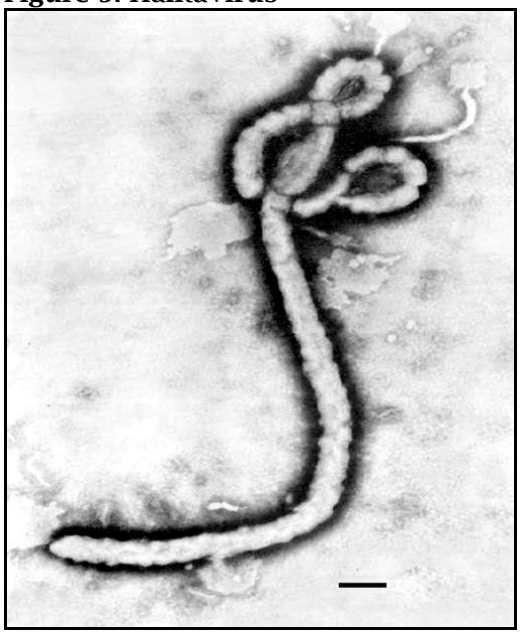


Figure 7: Ebola virus

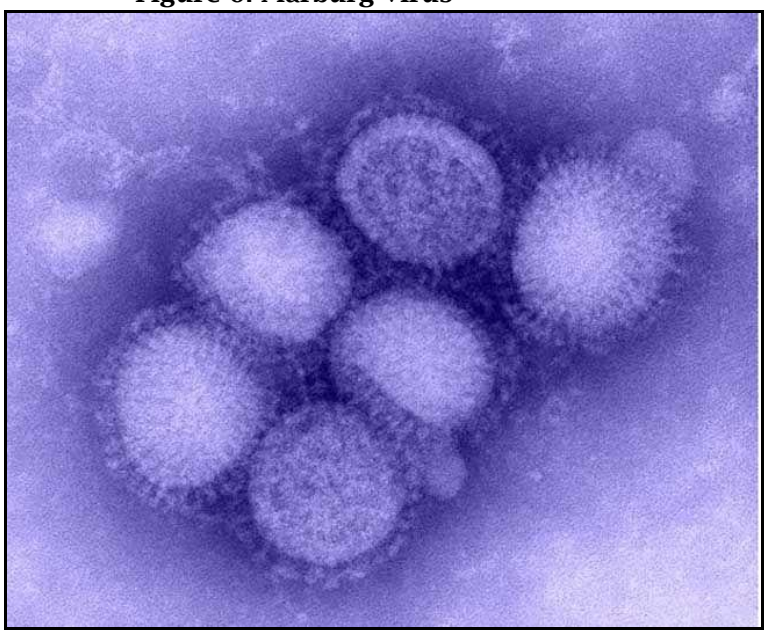


Figure 8: H1N1 swine flu virus (2009)

Thus in conclusion, viruses are not organisms in the usual sense, but parasitic genomes related to plasmids (small extra-chromosomal molecules within cells which are physically separated from chromosomal DNA, and which have the capability to replicate independently. They commonly occur as small, circular double-stranded DNA molecules in bacteria). Viral genomes, similar to certain plasmids, become integrated into the DNA of their host cells, displaying a form of parasitism[1,2].

The life cycle of the virus is alternated between two phases, one being extracellular, and the other intracellular. During the extracellular phase it exists as inert, infectious free viral particles, or virions, which consists of two essential constituents which are the genome (DNA or RNA) which is contained within a protein coat or capsid. Figures 2 and 9 show the structure of a non-enveloped virus (virion) of which the norovirus, rotavirus and the human papillomavirus are examples. As virions lack the mechanisms and capabilities to replicate themselves outside the host cell, it utilizes the physiology of the host cell during the intracellular phase to replicate its own nucleic acid (RNA or DNA) during a number of phases (Figure 10).

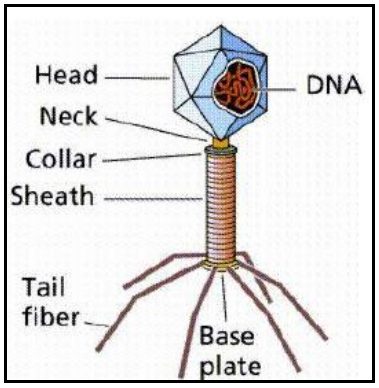


Figure 9: Non-enveloped virus (virion)[3]

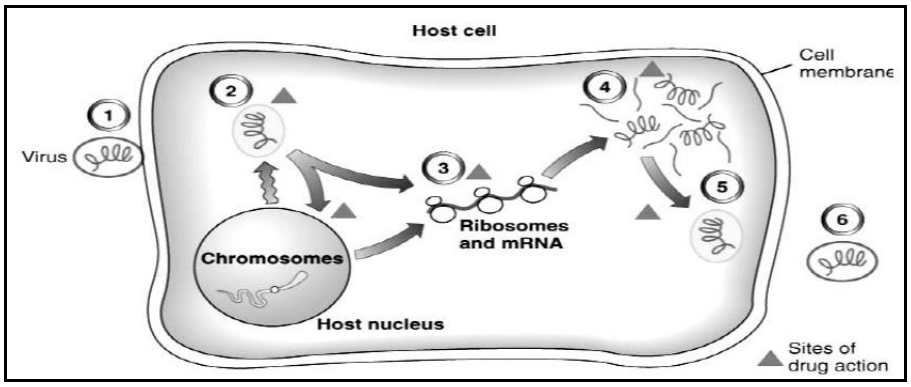


Figure 10: Stages of viral replication in host cell[3]

The six steps of viral replication as in Figure 10[3] are discussed in short:

1) The virus (virion) attaches itself to the outer membrane of the host cell.
2) The virus penetrates the cell membrane of the host cell and its nucleic material enters the cytoplasm of the host cell.
3) The uncoated nucleic acid frees its DNA or RNA from its capsomers (lipid envelope) and induces the host cell to express the genetic functions of the virus.
4) At this stage, only a portion of the viral genetic information is expressed, resulting in the synthesis of only the subset of viral-encoded proteins collectively called the early viral gene functions (proteins). These proteins may function in one of several ways. In some cases, they contribute directly to the replication of the viral chromosome. In some cases, these viral proteins turn off many of the host-cell activities, maximizing the cell's available resources for virus production.
5) Hundreds of thousands of copies of viral chromosomes are then synthesized using the viral nucleic acid introduced into the host cell.
6) New viruses in extremely large numbers are formed which are released from the infected cell/s to attack new cells and repeat the process.

Overview from literature sources by Louis de Wet (PhD) ZS6SK. Please note that the purpose of this overview is for informative purposes only. No personal views are expressed. In the May 2020 Issue of Watts, an overview will be presented on the 1918 Spanish influenza and the devastating global effects it had.

References

[1]Stanier, R.Y., Doudoroff, M. & Adelberg, E.A. 1972. *General Microbiology*. Macmillan Press Ltd. London
[2]Davis, B.D., Dulbecco, R., Eisen, H.N. & Ginsberg, H.S. 1980. *Microbiology*. J.B. Lippincott Company. Philadelphia.
[3]Kaur, R., Taheam, R., Sharma, A.K. & Kharb, R. 2014. Important Advances on Antiviral Profile of Chromone Derivatives. Research Journal of Pharmaceutical, Biological and Chemical Sciences. Vol 4(2): 79-96.

2020 Northern Regions Rally Calendar

Rnd	Date	Province	Location
1.	28 March	Mpumalanga	Delmas
2.	26 April	Mpumalanga	Sabie
3.	22 August	Mpumalanga	Bad Plaas
4.	17 October	Mpumalanga	Belfast

4X4 Rally Calendar: February – June 2020

Round	Date	Event	Location
1	01-Feb-20	GXCC	Bronkhorstspruit
1	08-Feb-20	NAT BIKE	Lesotho
1	28/29 Feb 2020	SACCS	Dullstroom
2	07-Mar-20	GXCC	TBA
1	27/28 Mar 2020	NRC	Delmas
2	3/4 Apr 2020	SACCS	Sugarbelt
2	18-Apr-20	NAT BIKE	KZN
2	25/26 Apr 2020	NRC	Sabie
3	09-May-20	GXCC	TBA
3	22/23 May 2020	SACCS	Clarins
3	29/30 May 2020	NRC	Porterville
4	06-Jun-20	GXCC	TBA
4	26/27/28 Jun	SACCS	Selibe Pikwe

Please do contact Johan de Bruyn ZS6JHB or Graham Reid ZS6GJR for more information

Long Term HF Propagation for April 2020: Courtesy Vincent Harrison ZS6BTY

The graph below shows the predicted F-layer Maximum Usable Frequency (MUF) for propagation from Pretoria[1] using monthly sunspot numbers from SILSO[2].

Local Propagation (up to 500 km): The F or F2 critical frequency (f_oF2) is the MUF for short range, near vertical incidence sky-wave (NVIS) propagation.

Long Distance Propagation: The MUF for a first hop of 4000 km in the cardinal directions is labeled North, East, South and West. They indicate the direction that propagation may be expected.

Worldwide Propagation Maps: http://www.parc.org.za/index.php?page=propagation

"*Prediction is difficult, especially when dealing with the future*". . . Danish Proverb. 73 Vincent, ZS6BTY

[1]FTZMUF2: A simple method of estimating the ionospheric parameters of foF2 and M(3000) with the aid of a home computer - Thomas Damboldt and Peter Süßmann, Deutsche Bundespost, December 1988.
[2] Silso 12-month forecasts of the monthly sunspot number (http://sidc.oma.be/silso/FORECASTS/prediML.txt)