

Operation Vula

1988 - 1992

Operation Vula was the final act of the banned **African National Congress** in the dying years of apartheid, before it was unbanned and Nelson Mandela was released in 1990.

Its mission was to infiltrate leadership figures into the country and set up underground structures to organise the final blows against apartheid.

It succeeded beyond the wildest dreams of the ANC leadership, achieving more in two years than had been achieved in the previous twenty - **all because of good, secure communications!**

Brief History



- ANC founded 1912
- Apartheid government comes to power 1948
- ANC banned in 1960 after Sharpeville massacre
- *Umkhonto we Sizwe* (MK), the underground wing of the ANC, formed in 1961
- Nelson Mandela and other ANC leaders sentenced to life in 1964
- Many leaders and activists fled into exile. HQ established in Lusaka, Zambia
- 1967 first attempts to infiltrate SA through Rhodesia (Zimbabwe) failed
- Late 1960s foreign recruits carry out first underground activities in SA
- Early 1970s activists receive underground training abroad
- 1970s saw an increasing number of propaganda activities
- Many activists ended up in prison
- My period of activism: 1974 - 1978

Communication Methods in the 1970s

- Public telephone using agreed code words
- Postal system
- Couriers

Coding Methods in the 1970s

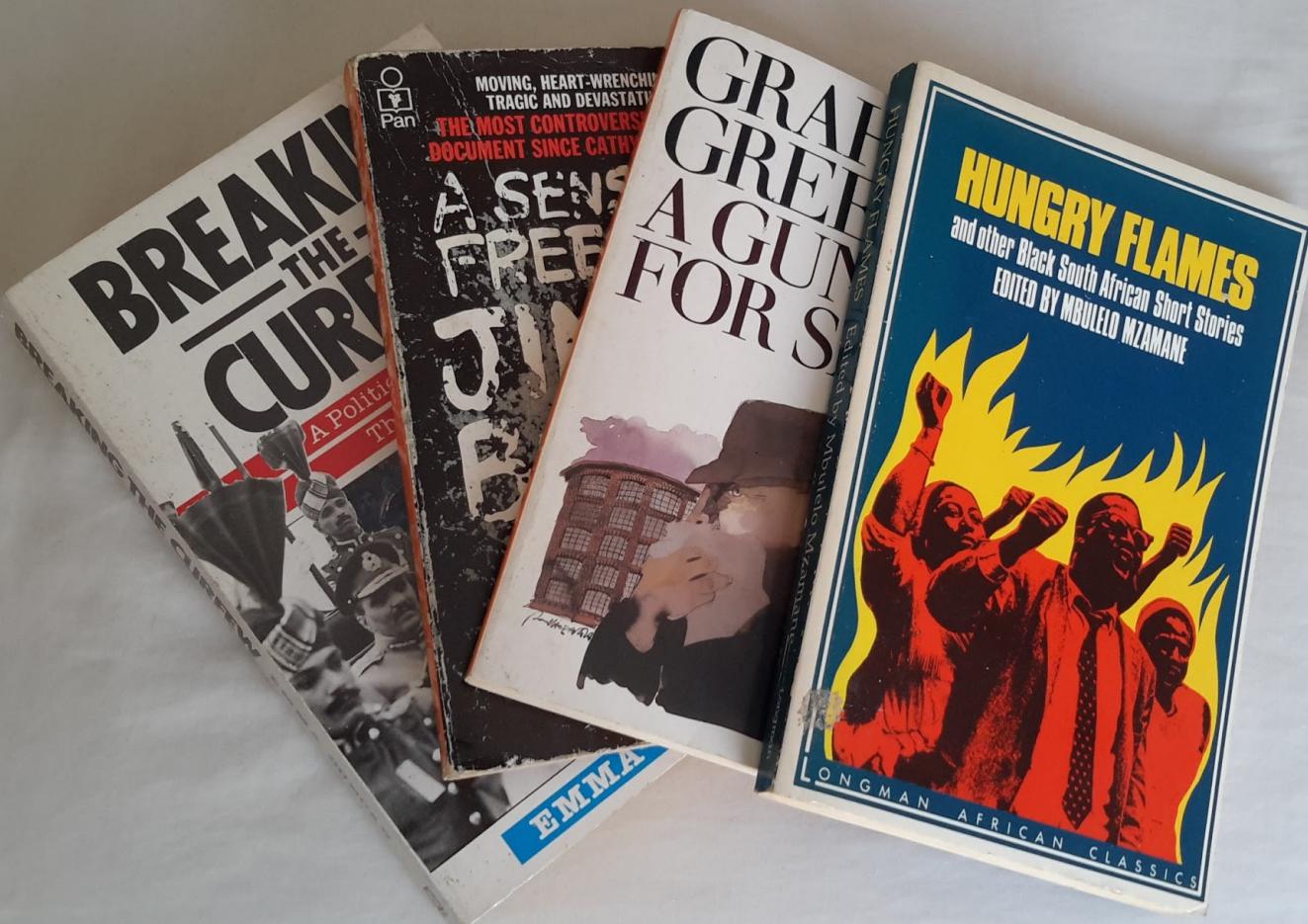
- Book codes

Concealment Methods in the 1970s

- Invisible inks
 - dry method
 - wet method
- Microfilm
- Concealed codes

Concealment methods:

- Postcards
- Greeting cards
- Gifts
- Books
- Toys
- Cassettes



Mita

CASEY MOTSISI

It was Saturday morning. The sun peeped out slowly from the Easterly womb. Slowly, almost furtively as though it wanted to take Sophiatown by surprise. But Sophiatown cannot be taken by surprise. Sophiatown might go to sleep late in the night, drunk, violent and rowdy. But in the small hours of the morning she wakes up, yawns away her hangover and prepares herself for another uncertain day.

It is a habit. A habit forced upon her by the machinations of the law—the early morning beer raids, pass raids, permit raids. Raids, raids, raids. And yet a habit also nurtured by the very way of life typical in all other locations. A young man knocks at your door. You open it and recognise him as one of your relations. He has news—sometimes good, often bad. ‘Father said I must come to let you know that Boikie is dead. The Tsotsis stabbed him last night.’ . . . ‘Uncle, Ma says I must come and find out if sister spent the night here.’ Less often: ‘Father says I must come and tell you that mother has given birth to twins. She wants auntie to come and spend the day with her.’ It is a habit for Sophiatown to wake up early.

Mita was an early riser. About four o’clock she would have the home fires burning and she would stand with her back to the small stove humming her favourite tune: ‘Stormy Weather’. That was at her parents’ home in Western township, just a throw south of Sophiatown. But now she was staying in Sophiatown.

Mita’s father, Mr Rabotho, who ran a small business at the Western Township Municipal Beer Hall, had told her some months back never to set foot in his house until she brought the father of her unborn child.

So Mita went to stay with the young man. Of course, the young man did not take it lying down. He argued. He wrangled. ‘How can you be sure it’s my child?’ But Mita’s insistent cry, ‘It’s yours, it’s yours. I know!’ finally triumphed.

But for the first time as far as she could remember, the morning Sophiatown sun had caught her napping. It was eight o’clock when she finally woke up. It was the pain. Lord, how can the human

body sustain such a torture! She tossed around in bed, her eyes tightly closed, her face mashed with pain. She knew her time had come, but doubt still played around with her mind.

‘How can it be, it’s hardly eight months,’ she kept asking herself. ‘But why the pain, the painful pain,’ she wondered again. ‘Is it because the baby is . . .’

But before her lips could form the word, ‘illegitimate’, her mind grabbed it and flung it against the cobweb-clustered ceiling.

‘Tho-o-mas!’ It was an unearthly scream that filtered through Mita’s clenched teeth. The scream hesitated at the door, the window, at every little aperture then burst out into the open as though afraid to linger another second in the small dingy room.

But Thomas was not there. At that very moment he was cycling through the maze that is Johannesburg delivering parcels and letters for his firm . . .

‘Ma Tladi, one of the yard’s shebeen queens, burst through the door. She was just in time to grab Mita and stop her from falling off the bed. The two women grappled like street brawlers on the bed. ‘Ma Tladi began screaming too when she felt Mita’s teeth slithering into the pudgy wrist, but she fought on gallantly. Her usual weekend clashes with her husband were standing her in good stead. Two other women darted into the room, saw what was happening and automatically gave a hand.

In a few moments it was all over. The fighting, biting, wrestling. All over. The three fleshy women were smiling—an almost holy radiance in their faces. Once more a miracle had come to pass. It was a baby boy!

Mita was crying. But these were extremely beautiful tears, a sight to behold. Tears that are the language of every human soul passing through a moment of boundless ecstasy. Later a doctor was summoned. ‘Ma Tladi paid the bill.

It was in the night when Mita heard the door open. A candle was burning in a saucer on the table. Thomas closed the door and stood looking at the bed. He knew that there were two lives in it. ‘Ma Tladi had told him when he stopped there to buy a nip of brandy.

‘You drunkard of a pig,’ she had shouted at him. ‘You come here saying “nip, auntie”. You rubbish, You had better save that five shillings and go and buy your child clothes and napkins. Get out of here and stop saying “nip, nip, auntie”, before I pour boiling

Book Code

MEET JOHANNESBURG EIGHT O’ CLOCK

55/10: 1, 16, 17, 18

55/14: 6

54/33: 9

spot nicely. We
are come & went - we
have been a mate of
extra long
long. we were seen
in open place
15 miles
near K.

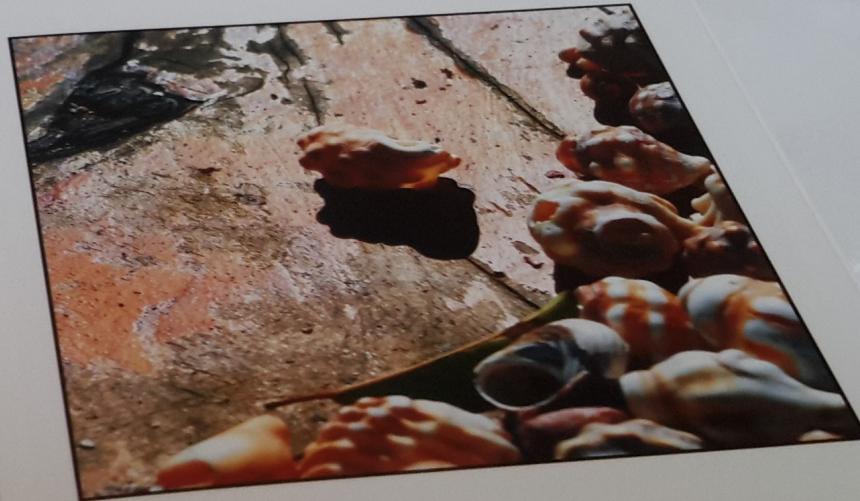
Fabrication suisse

PAR AVION



Mr. Jenkins
64 San Fran Rd





Communication Weaknesses - 1970s

- Hand coding very slow and tedious, resulted in very little communication
- Impossible to communicate operational information or give detailed reports
- Discovery of concealment methods had disastrous consequences
- Slowness of communication (mail) prevented continuity of activities
- Slowness of communication led to frustration and disobeying orders
- No way of requesting assistance/advice in times of danger
- No way of connecting with other activists
- No way of escalating activity to another level
- Cells felt cut off, alone and vulnerable
- **Weak communications were our downfall!**

Communication & Concealment Methods - Early 1980s

- One-time pads - still manual encryption in pre-computer days
- Cassette tapes (voice, DTMF or written)
- Floppy disks with primitive encryption
- Ultra-violet ink pens and lamps
- Safe addresses
- Couriers
- Transmission of ciphertexts by phone (voice)
- Touch-tone phones with tone decoders
- DTMF pocket tone diallers with tone decoders
- Above with tape recorders, answering machines and small microphone/speakers

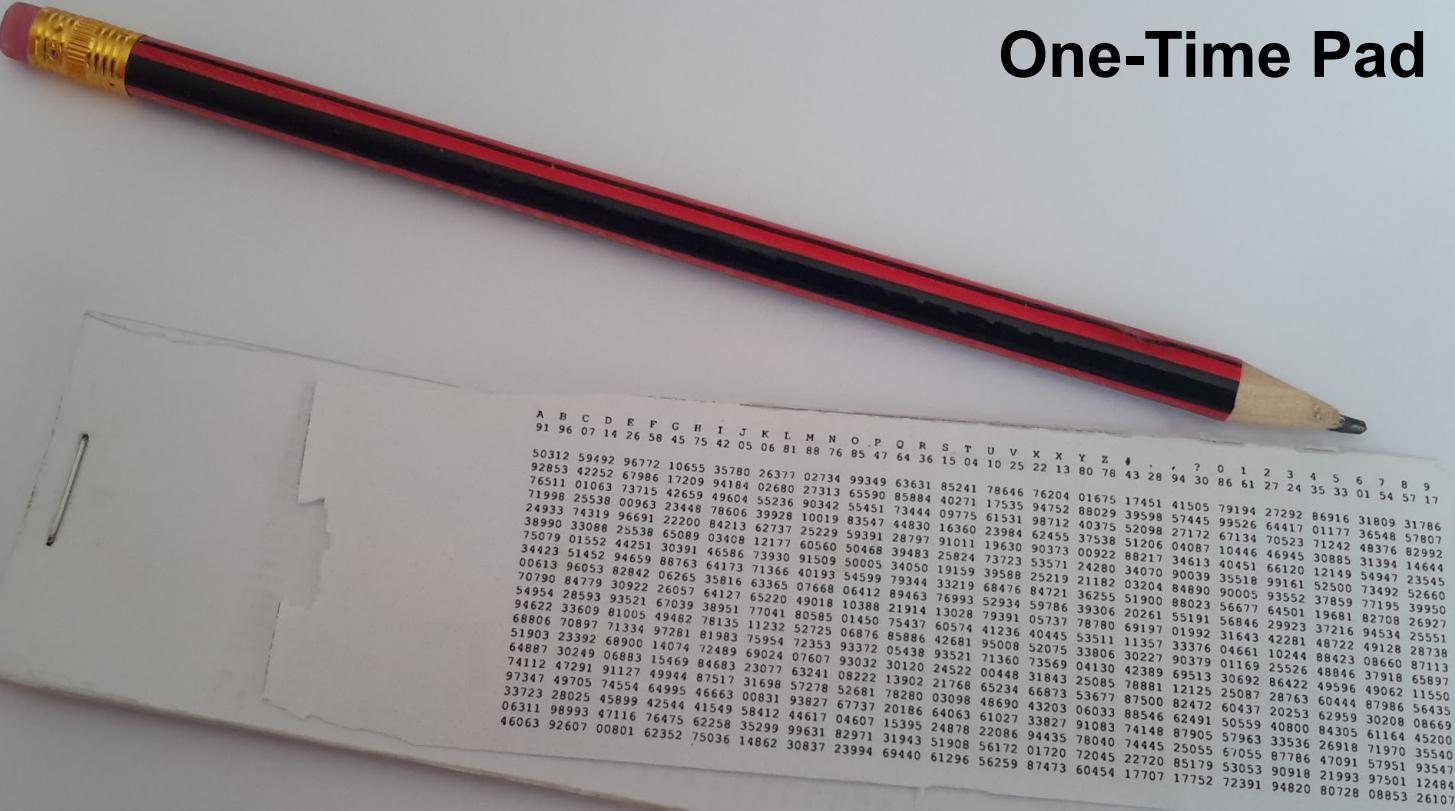
One-Time Pad Encryption

In cryptography, **the one-time pad (OTP) is an encryption technique that cannot be cracked if used correctly.**

“Given perfect secrecy, in contrast to conventional symmetric encryption, OTP is immune even to brute-force attacks. Trying all keys simply yields all plaintexts, all equally likely to be the actual plaintext. Even with known plaintext, like part of the message being known, brute-force attacks cannot be used, since an attacker is unable to gain any information about the parts of the key needed to decrypt the rest of the message. The parts that are known will reveal *only* the parts of the key corresponding to them, and they correspond on a strictly one-to-one basis; no part of the key is dependent on any other part.”

(Wikipedia)

One-Time Pad



One-Time Pad

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	#	.	,	?	0	1	2	3	4	5	6	7	8	9																																																																																																																																																																																																																																																																																																																																																																								
66	35	93	24	53	96	71	56	04	14	16	62	85	95	25	12	70	89	91	69	77	99	08	09	42	05	78	00	36	11	31	65	26	74	58	88	43	27	86	52																																																																																																																																																																																																																																																																																																																																																																								
55211	55089	76649	23252	46145	72273	10471	36848	81537	73871	35010	69052	41477	66662	42600	46962	29205	44281	66605	09282	21275	78123	13448	50223	72285	85813	64114	38660	75428	47761	48610	04867	33250	98659	01738	70822	89766	57611	14326	30691	56889	39688	15375	41495	33125	88862	73206	94616	48901	65188	47581	82410	59881	43574	15303	06900	91130	41161	56523	44554	40250	30841	88546	07088	45329	57889	25384	27264	28272	59566	36316	52628	26337	40858	09493	28085	14287	79923	45055	62708	20823	24369	26887	28128	16685	18735	70439	26853	80117	26765	05084	58321	30275	81631	11384	39510	89528	12360	60530	65331	83288	22782	98113	03170	66184	02953	42624	08133	46566	16074	28217	40530	18344	37679	02565	96000	58756	34045	48969	15681	55345	65093	99524	27544	20280	23630	82083	71044	24747	73328	96098	57750	49428	02004	40911	24788	79918	50367	55858	85310	67722	97835	00428	80105	56408	48812	42168	62197	27366	56121	51853	59167	61113	36576	52317	89785	22955	14786	04806	33074	19150	69110	54230	58885	87522	63941	32013	02203	54106	21335	83177	52243	01944	20580	50550	61223	50684	72686	35187	72592	06689	65174	66854	37398	06567	94324	79631	86717	74362	06320	20333	53528	85343	92703	21678	17360	36152	83178	92245	53165	67333	02285	55902	09692	71796	13691	64590	99296	17991	35650	64685	77544	09034	36575	02732	10666	78130	66820	93582	52307	50365	89154	61158	36398	47856	21327	59217	55046	41240	65968	78520	49910	80941	39225	23865	06683	43224	25035	19849	47332	86083	53283	37606	80555	80682	81279	47502	65075	28932	20069	17857	95737	31603	45162	78481	04792	68350	18912	30927	17067	94445	09771	47024	73408	02890	31236	14808	17404	92288	84007	00326	27040	38864	71078	26022	45080	79946	26518	25863	17337	28514	32957	60093	25184	76435	04028	91447	38748	25261	54212	05325	10400	71767	48711	53390	03103	68119	93479	90063	98278	40798	82438	31863	59757	74066	77269	56238	51729	03143	93091	13130	39942	52153	02460	56527	54847	88664	81680	68966	47163	47545	20041	65832	53409	49947	12381	53326	06342	22053	56498	95153	79482	13700	94386	85607	41580	30757	07109	88648	21648	64680	30025	65466	11911	56373	06460	22528	48599	87238	14346	47614	78273	61485	49114	78785	49659	47842	95270	10006	06900	79806	36287	98721	01887	16302	14235	65223	97045	68875	97786	64245	56764	42981	37950	44904	21952	76367	03655	98944	07730	63344	80937	76862	33093	61031	23079	44026	73681	85420	48823	96758	85449	28400	12474	13011	00258	99523	70114	83590	92676

Enciphering One-Time Pad Message

1. Write down plaintext message ▲
 2. Assign alphabetic value to each character ■
 3. Place random numbers in sequence below ◆
 4. Add columns using modulo (no carry) arithmetic +
 5. Arrange ciphertext into groups of 5 and send ➤

Deciphering One-Time Pad Message

1. Write down received ciphertext ➤
2. Split into pairs ↑↑
3. Place random numbers in sequence below ◆◆
4. Subtract columns using modulo arithmetic -
5. Look up character values to get characters ■■
6. Read plaintext ▲

30746	81957	32236	09783	14737	20798	99263	866	➤											
30	74	68	19	57	32	23	60	97	83	14	73	72	07	98	99	26	38	66	↑↑
55	21	15	50	89	76	64	92	32	52	46	14	57	22	73	10	47	13	68	◆◆
85	53	53	69	78	66	69	78	65	31	78	69	25	85	25	89	89	25	08	■■
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
M	E	E	T	#	A	T	#	1	0	#	T	O	M	O	R	R	O	W	▲



Ultra-Violet Pens and Lamps

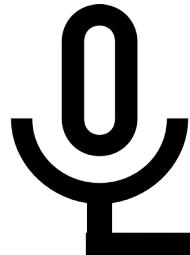


Communication Methods - 1980s

Touch-tone telephone (DTMF tones)



Microphone



Tone decoder



55211#
55089#
76649#
23252#
46145#
72273#
10471#
36848#
81537#
73871#
35010#
69052#
41477#
66662#
42600#
46962#
29205#
44281#
66605#
09282#

DTMF Pocket Tone Dialler





CM

7

8

9

%

ON
C

RM

4

5

6

-

\sqrt{x}

M-

1

2

3

\div

M+

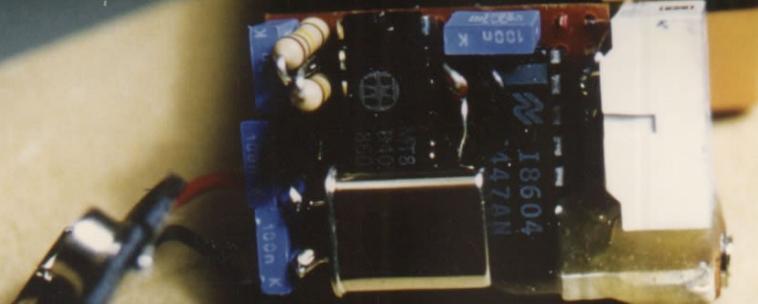
.

0

=

+

\times



DURACELL

18604
147AN

Situation in SA in mid-1980s

- **1985 Kabwe Conference** recognised that the struggle was not progressing
- Internal structures were not being built
- No permanent underground to speak of
- Too much focus on urban areas
- Armed struggle unrelated to mass actions
- Poor propaganda and information flow
- ANC perceived as ‘underground organisation’ out of touch with the masses
- Actions were ‘hit-and-run’ and not sustainable
- Main problem was lack of internal leadership
- Imperative to get leadership inside to build up and infiltrate organisations
- Revolution by ‘remote control’: ‘Generals’ in Zambia; ‘soldiers’ in SA

Operation Vula (“Open the way”)

- *Operation Vula* was the top-level response to the Kabwe resolutions
- Originally known as the ‘President’s Project’, it initially involved a core group of top leaders close to the ANC President, Oliver Tambo
- The group was kept small and tight to prevent infiltration. Only the most trusted members were involved in the planning
- The main aim of *Operation Vula* was to get leadership figures back into South Africa in order to build the underground structures
- Previous attempts to do this had failed because of poor communications
- It was realised early on that for *Vula* to be successful, **the number one requirement was for good communications**

Our Mission and Challenge!

- Computerised encryption (no manual encryption)
- ‘Unbreakable’ ciphers
- Safe communications for activists
- Must work from public telephones or radio
- Activists in SA must be able to communicate safely with HQ in Zambia
- Activists must be able to receive responses within hours of requests
- There needs to be a way to send more detailed reports
- There needs to be a way to store messages/documents securely
- There needs to be backup systems in case one breaks down or out of use
- Must be able to scale to include new areas
- **Simple to use. No special skills or understanding required!**

High speed DTMF modem

Philips PX-1000

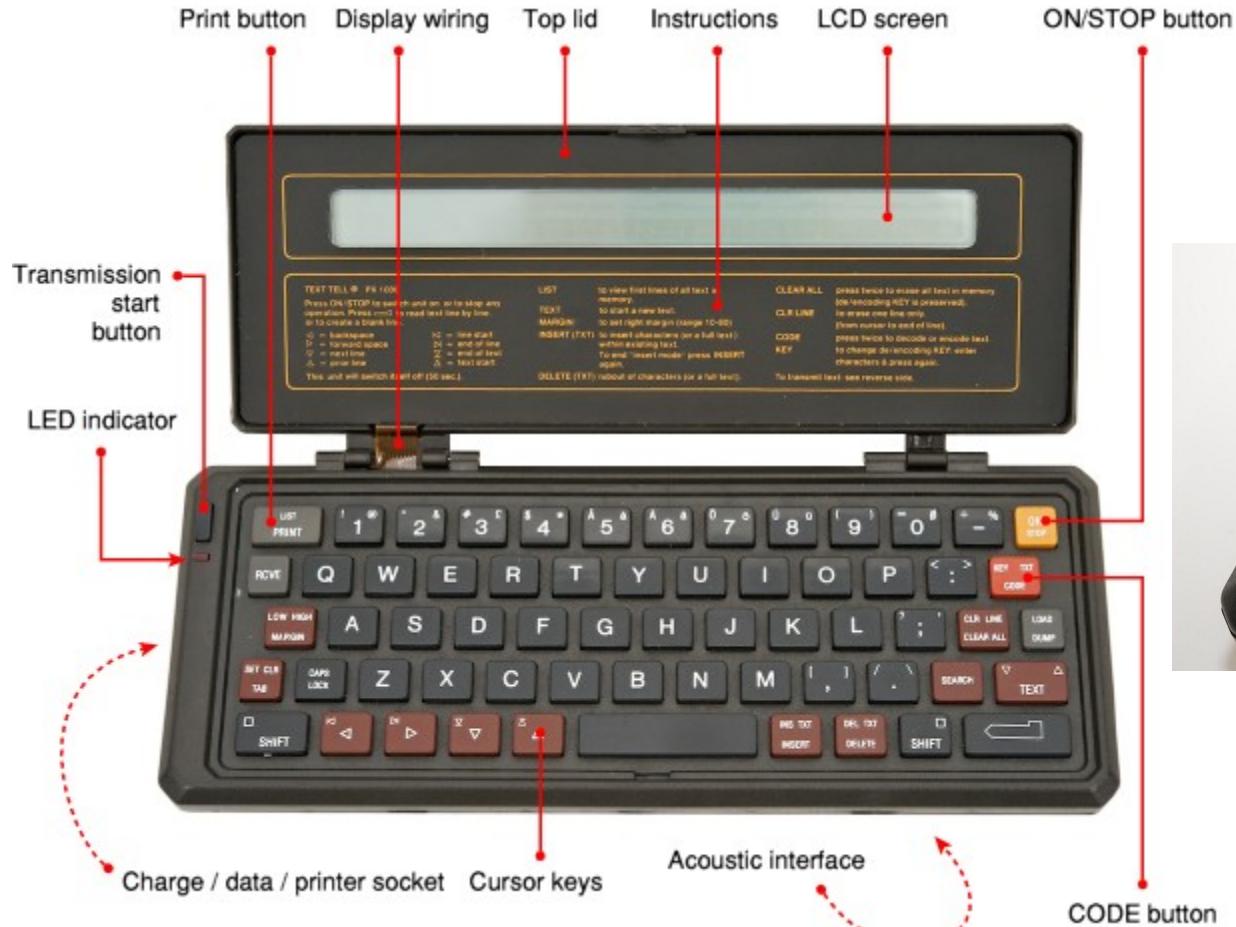
From: Crypto Museum (www.cryptomuseum.com):

The PX-1000 was a small hand-held message terminal, that was used for creating and sending text messages over standard telephone lines, using a built-in acoustic coupler. The PX-1000 was introduced in 1983 by Text Lite in Amsterdam and was sold by Philips (Netherlands) and others.

Although different versions of the PX-1000 were available, we will concentrate here on the Philips version of the PX-1000Cr, as it features built-in advanced cryptographic capabilities. It was intended for small companies and journalists, and was also used by the Dutch Government. **Furthermore it played an important role in the fight for Nelson Mandela's release from prison.**

The initial PX-1000 was introduced by Text Lite in 1983. It was capable of sending messages up to 7400 characters via a standard analogue telephone set, using the built-in acoustic modem. As a countermeasure against eavesdroppers, the text could be encrypted with the DES encryption algorithm. **In 1983, the NSA expressed its concern about the availability of the DES algorithm to the general public and asked Philips to implement an alternative algorithm.**





Philips PX-1000

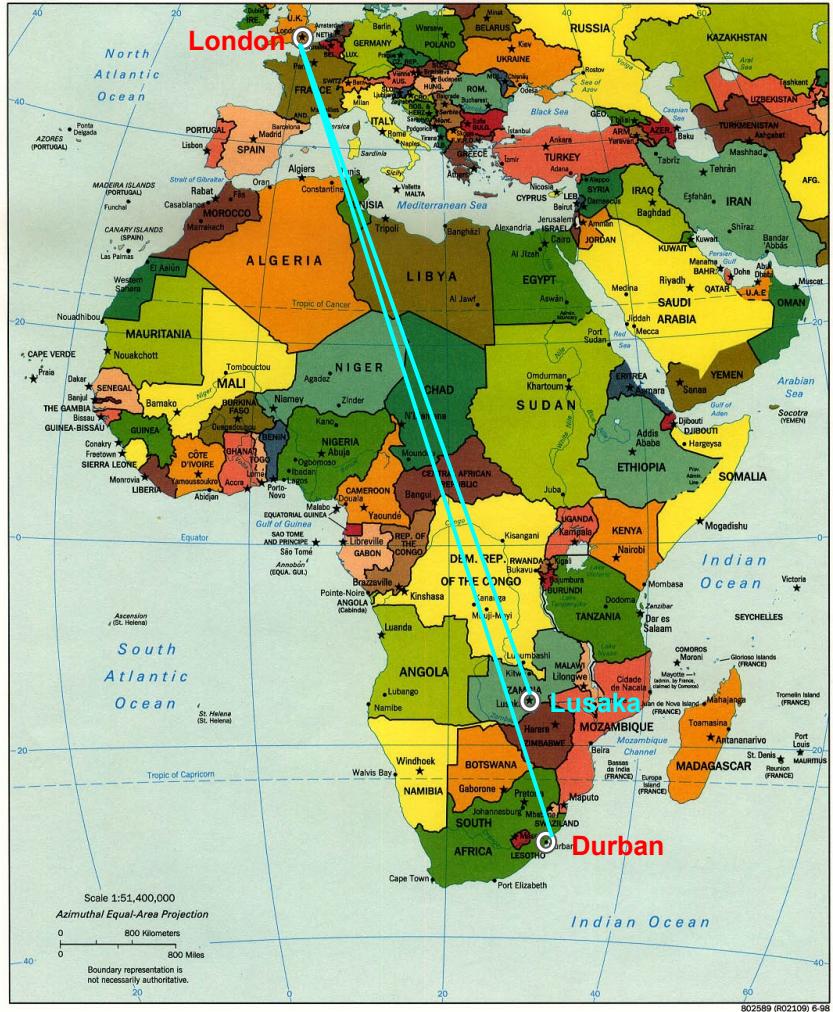




Problems with commercial systems

- We did not trust available encryption algorithms
- Involvement of NSA in design of DES made us suspicious of backdoors
- PX1000 had limited memory (message length limited)
- PX1000 system required two active participants:
 - both ends had to first agree on time for communication
 - could not be automated
 - difficult to contact the other side if something went wrong
- PX1000 signal too weak
- PX1000 messages could not be saved

Africa



Operation Vula

Initial setup - August 1988

Activist's Equipment

Toshiba T-1000 Laptop



Acoustic Modem Cassette Recorder



Speaker/microphone

Pager



Program & data disks

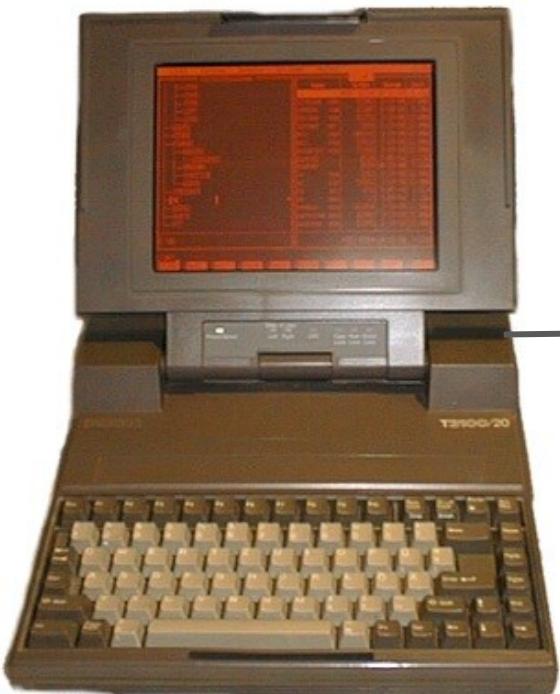


Connector
cable



'GCHQ' Equipment

Toshiba T3100



Acoustic modem



Incoming answering machine



Outgoing answering machine

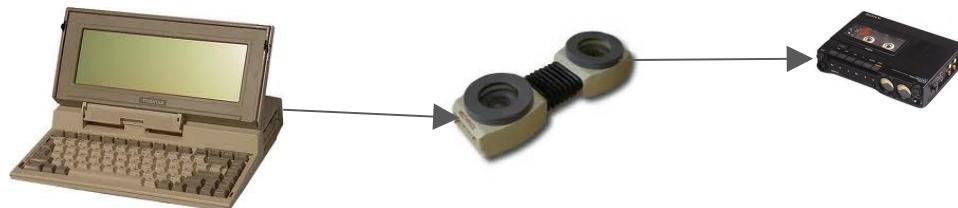


‘GCHQ’ Equipment (x 2)

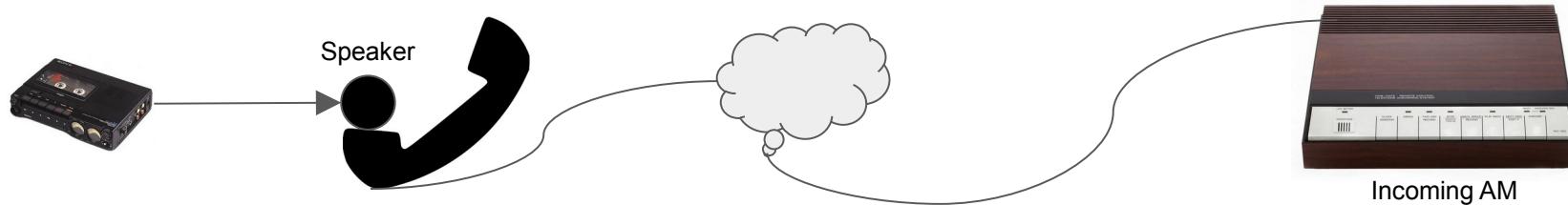
- Toshiba T3100 portable computer
- 3 phone lines (incoming, outgoing, private)
- 2 ‘doctored’ answering machines
- 2 mobile phones used with “voice banks”
- Long-range cordless phones for remote answering machines
- Modems, acoustic couplers, amplifiers
- Pagers
- 2m radio for daily contact + handhelds (frequency hopping)
- Long-range short wave radio
- Ultraviolet lamps (for book keys)

How it worked - sending a message from SA

Step 1 - Type msgs, encrypt, transfer to tapes via acoustic modem:



Step 2 - Send encrypted msg to answering machine in London using public phone



Step 3 - Wait for pager msg confirming receipt

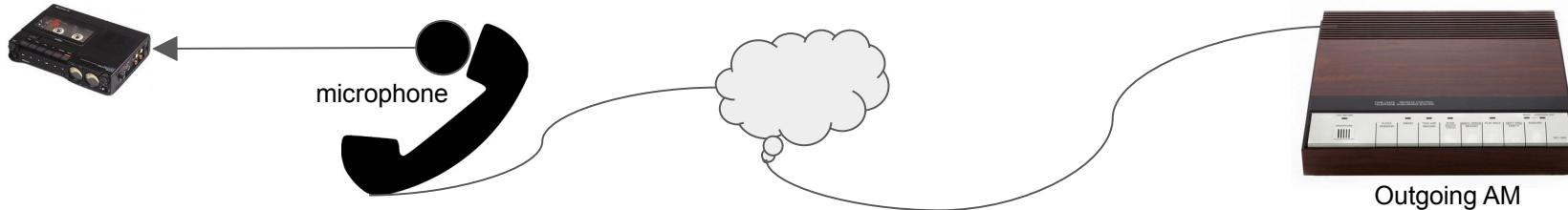


How it worked - receiving a message from London

Step 1 - Pager msg informs how many msgs to pick up:



Step 2 - Pick up encrypted msgs from answering machine in London using public phone



Step 3 - Transfer msgs to computer via acoustic modem, decipher and read



'GCHQ' Equipment - continued

Transportable phones



Mobile phones



Wireless phones



Pagers



Tape Coder Program (TC)



Security:

- Compiled encrypted
- Program on floppy
- Password entry
- All files in RAM disk
- OTP encryption
- Encryption in RAM
- Decryption in RAM
- TC ‘scrubs’ data disk after using data
- Hidden secondary menu for enciphering/deciphering for storage
- Messages that need to be saved can be encrypted
- Deletion ‘scrubs’ files from floppy disk

D:**

FRIDAY.ENC

FRIDAY.TXT

EDIT/READ FILES

11744 bytes free

FRIDAY.TXT 9096

↔↑↓ to select file SPACE to tag file

ESC: Menu

1Copy 2Renam 3Del 4Enc 5Dec 6Type 7Edit 8Setup 9Term 0Quit

Initial Encryption Program - Tape Coder (TC)

Software written in PowerBasic, then compiled into EXE program. Here is the encryption routine:

```
SUB EncVerFD (MSG$, SNUM$, SALF() )
LOCAL BM,CP
LENMSG=LEN (MSG$)
$EVENT OFF
FOR ENC=1 TO LENMSG
    RL=ASC (MID$ (SNUM$, CP+1, 1))
    CH=SALF (ASC (MID$ (MSG$, ENC, 1)))
    CD=(RL XOR CH) MOD 128
    MOUT$=CHR$ (CD+32)
    IF (ENC+2) MOD 10=0 THEN MOUT$=MOUT$+CHR$ (160+BM) :INCR BM
    PUT$ #1,MOUT$
    CP=ENC MOD 3000:BM=BM MOD 15
NEXT ENC
$EVENT ON
EM$=STRING$ (5,175)
PUT$ #1,EM$
END SUB
```

Creating Truly Random Number Data Disks

1. Create 1.44M random number file using random number generator, with random keyboard input to reseed
2. Randomly merge exe files and documents to create second 1.44K file
3. XOR the two above and keep
4. Create another 1.44M random number file using random number generator, with random keyboard input to reseed
5. Randomly merge exe files and documents as above
6. XOR files created in 4 and 5
7. XOR 3 and 6
8. Repeat above process as many times as possible
9. Resulting random file can be used a 'key' to create subsequent data disks

Vula's First Messages

Received Sat 27th Aug 1988

Tried to reach RP. I've got five batches for him but it seems that it's not set up yet. So could you try and arrange that so that we can try from tomorrow onwards depending on availability of facilities here. OK. Wait to hear from you. Will check tomorrow. Ciao.

Sent Sat 27th Aug 1988

Hello. Will you please give this message to Ben. Tell him I'm surprised he's trying to get hold of Ronald as I sent him a memo via John explaining what he should do. In any case Ronald is with Oscar and will be there for another week or more. Please tell him that he must read the memo as instructed in the covering letter and then everything will be clear. We are no longer involving Ronald as at first planned and everything will now go to Ken instead. That's all for now. Bye

Vula's First Messages, continued...

Received Tues 30th Aug 1988

Hello again.

Firstly, have decided to invest R20,000 in project to obtain a rotating float of vehicles which will be doctored here and sent to collect goods. This is only way we can keep costs down. Have found ways to register vehicles in untraceable way. Of funds we have with us, have already put in R10,000 into project. Part of quality of results will be seen when Paul/Enrico service JRL???????

Two. Above project does not cater for ensuring Ben and Sylvester become mobile. This will have to be attended to differently in ways that fit their legends and will be dependent on your approving the extra funds we have asked for.

Thirdly, busy setting up propaganda project at Grace's. Will be investing R10,000 to R15,000 in equipment etc. Will definitely be operational - at technical production and distribution levels at the latest by end Oct in time for next Umsebenzi. But plans are to be operational before that so that we can bring out series of leaflets in name of ANC before then especially on election issue. Presently, through indirect contact with cadre who received copy of Lusaka leaflet on elections we are getting machinery to reproduce 30,000 copies of it. More. Bye Ben

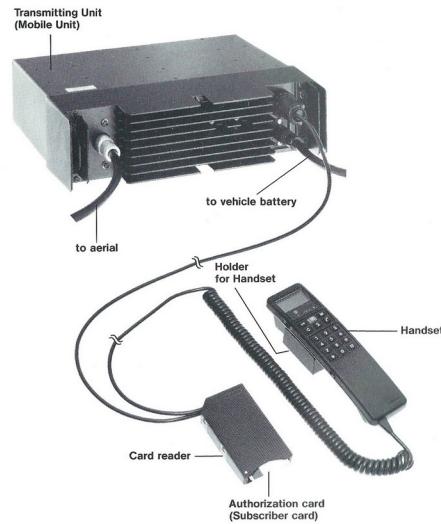


Siemens C10 Radio Telephone

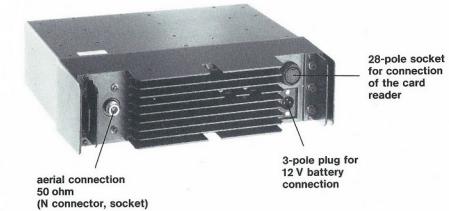


Structure of the mobile telephone

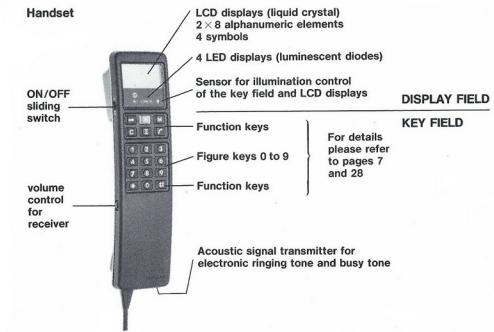
The mobile telephone consists of the transmitting unit, handset and receiver.



Transmitting Unit



Handset



Later Security Measures

- Names, places, equipment, actions, dates, times, phone numbers etc. coded
- Regular in-text patterns forbidden
 - Headers
 - Footers
 - Item numbering
 - 1st person becomes 3rd person etc
- Files compressed with encryption
- Low security messages encrypted with book-derived key to save OTP data
- ‘Top Secret’ messages encrypted with OTP first, then again with book-derived key
- High security messages could be repeatedly re-encrypted (e.g. new codes)
- No header and footer patterns in ciphertext

Message Security

#2 on Sunday

Found these instructions for operating the binoculars. They apply to the latest batch that were assembled by the optical technician last year. There may be some details that don't apply or are different to those which would apply to binoculars sent earlier.

You will have to interpret them with TK.

happy viewing

=====end of repeats=====

Sue calling:

Have you used the Bobby CS yet? If not, do you plan to use it? Think you should spread your CS usage rather than have everyone using the 'CHARLES' CS (ie CS #2).

From the account for CS we see that you are using it CS quite a lot. Would you give us an idea of your usage. That is, what sort of traffic does CS see and how many people are using it. Perhaps we should get some more CS's?

The letter from Jessie that you sent Sue could have been sent directly to Joy. Pls try to make contact with Joy as we want to get the system up and running.

In the the light of the possibility of Mark staying on with Sue, Joy can be used as a back-up for Mark. She must be able to take over Sue's functions completely. The sooner she is familiar with the system the better. Have sent the binocular instructions again. As you will see from the above it was included in the Sunday msgs and needs TK for interpretation.

OneDayItWillAllBeStraightTillThenYouWillHaveToWait

'GCHQ'



















The ‘Amsterdam Connection’

- Conny Braam and the *Dutch Anti-Apartheid Movement*
- Conny’s ‘soldiers’ and ‘spies’
- Activist disguises and actor training
- KLM air hostess - courier Antoinette Vogelesang
 - Carried money
 - Set up bank accounts, secretarial services
 - Took in disks, books, laptops, equipment
 - Purchased equipment e.g. radio telephone
 - Brought out documents, reports, letters, gifts etc.
- Concealment vehicles
- Equipment source
- Training (secret compartments etc.)
- Setting up safe houses in front-line states and SA





Lusaka Office

UBA
PRODUCTIONS

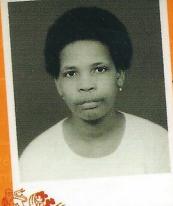




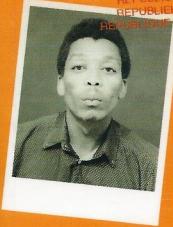
Antoinette Vogelesang
KLM air hostess / Operation Vula 'mule'



BBS



REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA
REPUBLIQUE DE L'AFRIQUE DU SUD



OPERATION VULA

CONN Y BRAAM

'A tragic, courageous book. A rare testament.' Elsevier

'A fascinating account.' Time



Later Developments

- ‘RapidBest’ front company/Secretarial services
- Move to email (BT, CS)
- Email attachments
- Full 8-bit character set (256 chars)
- More complex ‘random’ algorithms
- Randomness testers
- Handheld computers
- Packet radio (SW, FM)
- BBS software (Lusaka)
- Fidonet, Geonet, Memocom



Psion Organiser



Atari



Our private 'Internet'

The Achievements of Vula Communications

- Enabled top leaders to return to SA
- Provided almost real time connection between ANC underground and HQ
- Underground network expanded many times greater in 2 years than in previous 20 years
- Reduced attrition rate to zero (no one got arrested!)
- ‘Smuggling’ success rate increased by 1000%
- Connected all the major centres
- Allowed the ‘free flow’ of money, resources and information
- Externally prepared publications could be printed and distributed in SA
- Connected Nelson Mandela, still in prison, with ANC at the time his terms of release were being negotiated with the apartheid regime

Lessons & Observations

- OTP is still the best, despite the key distribution problem
- OTP could be used today (using open keys!)
- Encryption is not everything; concealment is important
- Sometimes there is a need to even conceal the usage of encryption
- Important to leave no trace of crypto activities
- There are ways to make communications completely anonymous
- Encryption has to be easy. Present day encryption is still too complex and confusing for general usage
- Internet is unsafe; metadata is revealing
- Using encryption requires a lot of discipline
- If the rules are not followed, the results can be disastrous
- **Nothing is more important than good communications!**

Additional Information

- The Vula Connection: <https://www.youtube.com/watch?v=29vrvKsKXPI>
- Talking to Vula:
<https://omalley.nelsonmandela.org/index.php/site/q/03lv03445/04lv03996/05lv04001.htm>
<https://web.archive.org/web/20180722014538/http://www.anc.org.za/content/talking-vula/>
- O'Malley Archives:
<https://www.nelsonmandela.org/omalley/index.php/site/q/03lv03445.htm>
- How the ANC sent encrypted messages in the fight against apartheid:
<http://mybroadband.co.za/news/security/131822-how-the-anc-sent-encrypted-messages-in-the-fight-against-apartheid.html>
- Revolutionary Secrets: Technology's Role in the South African Anti-Apartheid Movement:
https://m.moam.info/revolutionary-secrets-south-african-history-online_647a28f5097c4768028c6495.html