ment is at Voortrekkerhoogte, in the complex of buildings originally occupied by 1 Military Hospital before it moved to its new site nearby.

A new rehabilitation complex will become operational at 2 Military Hospital, Cape Town, some time next year.

Veterinary services. Although the SADF is more mechanised than it has ever been, it still makes large-scale use of animals such as patrol horses and guard and tracker dogs. The SAMS veterinarians care for all SADF animals, and also supply services for civilian livestock as part of the extensive civic action programme which is in operation in SA and Namibia. This includes research into diet and feeding methods in an attempt to prevent ailments.

Introducing the SWATF

SA’s equivalent of the Cubans in Angola — or something more? Eight years after the SWA Territory Force was born, it is still often condemned as an alleged “surrogate force,” but that is too simplistic a view

SWATF, now around 21 000-strong and swiftly assuming more and more responsibility for fighting the border war, is a child of three fathers: political expediency, solid military realities and some perspicacious contingency planning.

In the first place it is the child of politics. For years Namibia dominated the headlines in the South African press and political world, often in a form negative, not to say hostile, to the government.

In the second place it was obvious to military planners that sending South African battalions to the border for three months at a time was not an efficient use of assets.

In the third place, it was obvious that Namibia was inching inexorably towards independence. It was equally obvious that if Swapo was handed the reins of government, as happened to the MPLA in Angola and Frelimo in Mozambique, the insurgency would continue.

All these considerations and probably several others contributed to the decision to form SWATF on August 1 1980.

From the military point of view, the strategy of fighting fire with fire has succeeded excellently, so that Swapo’s losses have been consistently high for a number of years as SWATF extends its operations to the point where at present about 70% of the “bayonets,” an ancient military term for fighting troops, are now local men.

Seven years on, SWATF might still be under ultimate South African command, but it has its own uniform, organisation and identity. It is developing its own mystique and its own mythology, intangible but essential ingredients of a successful military force.

Thanks to SADF administrative back-up, SWATF is long on teeth and short on tail. It is commanded by the Windhoek-based Major General Willie Meyer, General Officer Commanding SWATF, and is divided into the following:

The Reaction Force has two elements:

☐ A part-time motorised conventional-war-
fare brigade made up of three motorised infantry battalions and an armoured car regiment. One battalion is made up of full-time national servicemen, but the others are manned by Citizen Force soldiers of all races, called up on a selective basis, then trained at 2 SA Infantry Battalion Group at Walvis Bay, with advanced training being done at the SWA Military School at Oka-handja.

Six full-time light infantry battalions, locally recruited from specific ethno/cultural groups, with a sprinkling of outsiders to provide needed expertise. Each battalion trains its own men and has a specific area which it works, year in and year out. There is a battalion of Ovambos, two battalions of Bushmen, a battalion of East Caprivians, a Kaokoland battalion and a Kavango battalion.

The Area Force:
This consists of 26 part-time units which are the equivalent of SA’s commando battalions. Manned by men of all races and varying in size and structure according to regional requirements, they operate in their home areas.

Other elements:
These include one engineers and one signals unit, a parachute battalion and a specialised unit, whose men hunt insurgents on horseback or scrambler motorcycle. There is also an “air force” in the form of 112 Squadron, a commando squadron whose annual turnover of nearly R2 billion. This massive organisation employs about 23 000 workers of all races, has as an organisation. Its 10 privately-owned subsidiaries of their own, provide needed expertise. Each battalion trains its own men and has a specific area which it works, year in and year out. There is a battalion of Ovambos, two battalions of Bushmen, a battalion of East Caprivians, a Kaokoland battalion and a Kavango battalion.

181 years of development
In 1806 a young gunsmith named J S F Botha set up shop in Cape Town and proceeded to manufacture smooth-bore “sannas” by assembling imported locks and barrels, then fitting them to locally carved stinkwood stocks.

Just under 180 years after J S F Botha set up his gunshop in Cape Town, British troops who had overrun Argentinian positions in the Falklands War were intrigued to find their late enemies’ radios equipped with frequency-hopping devices superior to their own... and, like Botha’s stinkwood guns, made in SA.

That is how far the arms industry has progressed in SA. Whether one approves of the reason behind it or not, it is a remarkable achievement by any standards. By a combination of imported technology and know-how, locally-acquired expertise, inspired corner-cutting and intensive research and development, the South African arms industry has taken less than four decades to develop to such an extent that the country is now a net exporter of weapons and equipment.

Massive organisation
The Armscor of 1987 vintage is a massive organisation. Its 10 privately-owned subsidiaries, some with subsidiaries of their own, employ 23 000 workers of all races, has assets totalling about R1.7 billion and an annual turnover of nearly R2 billion. This compares with Tiger Oats’ employment figures of 23 000 and assets of over R1.6 billion. Tongaat’s total assets, for example, are also over R1.6 billion, but it employs over 37 000 people, and the OK Bazaars employs 23 595 people, but has assets of R352.6 million.

But that is not the total extent of Armscor’s influence on the economy. It has about 800 major and 300 minor sub-contractors employing about 60 000 people, while another 1 200-odd firms supply it with items from their normal production runs.

Yet another ripple effect of its operations derives from the fact that it has had to introduce and develop new technology which in the normal run of things would not have been seen in SA at this stage of the country’s development. The result: a spin-off benefitting the civilian sector, much as the space race introduced new materials and methodology to the world at large.

Incredible as it might seem, Armscor has made SA the world’s tenth largest arms exporter, supplying 23 different countries, some of which would not be seen dead speak-

THE MINE BEATER
Casspir development (1972-1980)
1. Early 1972: Camel mine-protected vehicle is designed by SADF Defence Research Unit.
2. Prototype Camel is manufactured by Sandock Austral factory and sent to Caprivi for evaluation.
3. Late 1972: 8 modified Camels are produced, renamed Hyaena, sent to Caprivi and prove eminently successful.
4. 1973: Hyaena goes into mass production for SAP and Rhodesian government.
5. Defence Research Unit starts experiments to build larger mine-protected vehicle called Wolf by adapting Hyaena principles to a Unimog chassis.
6. SAP asks DRU for Wolf look-alike but based on Bedford instead of Unimog chassis. DRU does so and produces Hippo.
7. 1974: First order for 150 Hippos goes into production at Messrs J Broichouse (later built subsequently by other firms including Hendel Freuhauf).
8. Late 1977: SADF orders Hippo (eventually acquiring 552).
10. Late 1978: First prototype of monocoque Hippo is produced.
11. Late 1978: Koos de Wet (UCC) and Gus Modlin (TRM Pty Ltd) redesign monocoque Hippo.
13. March 1980: SAP places first order for 140 slightly re-designed Casspirs, to be built by Hendel Freuhauf (subsequent orders executed by TRM).

Source: “Taming the Landmine”, by Peter Self

The Armscor Ratel, backbone of SA’s mechanised infantry

The SADF. A Survey. Supplement to Financial Mail July 10 1987 47
What's in the pipeline?

Commandant P G Marais, chairman of Armscor, and his brains-trusters traditionally maintain a zipped lip about what they have in the development and production pipelines, but educated guesses paint an interesting picture.

Armscor maintains a heavy research and development programme that absorbs many millions in any given financial year. According to one official "about 75% of our brainpower is used in developing new-generation weapons for the future." Armscor officials maintain they get a disproportionate amount of mileage out of every rand by painstaking and exhaustive basic preparation.

"The Americans can afford to build a missile and then fire off about 200 for evaluation," an official says. "We can't afford that way of working. So by the time we actually launch a missile it has already undergone hundreds of simulated computer firings in the laboratory."

Among the items Armscor is definitely or probably working on:

The G-6 self-propelled 155 mm gun-howitzer, which has been on the back-burner since being unveiled several years ago. Judging by Finance Minister Barend du Plessis' remarks during his Budget speech, the G-6 is now in production.

The Cheetah ground-attack fighter conversion programme is obviously to be pushed hard, judging from the enormous extra slice of military expenditure which is to be devoted to air defence in the 1987/1988 Budget.

A new armoured car, better equipped to face the growing tank threat from certain neighbouring countries like Angola, which now deploys the late-model Soviet T-62 tank. The Eland-90 and Eland-20 armoured cars now in service have been thoroughly battle-tested but represent 1960s technology and have physical limitations as regards both armour and gun-carrying capacity.

The obvious answer: A considerably larger armoured car, most likely six- or eight-wheeled, probably more heavily gunned and armoured and definitely powered by a diesel rather than the more flammable petrol engine.

Other additions to the Ratel family: One variant which is urgently needed for the conventional forces is a Ratel mounting an 81 mm mortar; today's mortar location apparatus is so good that a mortar's position can be pin-pointed before its first bomb hits its target.

The riposte to this is a vehicle-mounted "shoot-and-scOOT" mortar. Another urgent requirement is a Ratel mounting dual or quadruple anti-aircraft guns, and/or another mounting small guided missiles, especially now that countries like Angola are beginning to develop credible aerial combat forces.

A new battle tank to replace the Olifant/Centurion. It is known that as long as ago as the early Eighties Armscor's R & D boffins were engaged in this direction, having concluded - like their colleagues elsewhere in the world - that the heavy battle tank was not yet obsolete in spite of premature obituaries intoned over it after heavy Israeli losses during the 1973 Yom Kippur War.

Active armour: One of the latest innovations in military technology is "active armour" - blocks or plates which are attached to vehicles and ensures a pre-emptive explosion on being struck by the sort of shaped-charge projectile fired by man-portable launchers like the RPG-7. This pre-emptive explosion totally or partly destroys the effect of the shaped charge.

It is not known if Armscor is developing such armour, but it is deeply interested in anti-armour-piercing technology and has been working for a long time on an alternative, ceramic armour.

More emphasis on missiles. It is clear Armscor is looking more and more toward missiles as a way of making up for its problems in acquiring high-tech aircraft. Among other things this could mean the development of an anti-radar missile of performance similar to the American cruise missile type.

This would be a good antidote for the extensive radar and surface-to-air missile network that now defends southern Angola and covers so much Namibian airspace that a Mirage fighter operating from Ondangwa air base can be picked up and tracked from the moment it leaves the runway.

If the southern Angolan network can be disrupted or put out of action it would be much easier for the SAAF to maintain aerial superiority without placing its precious and almost irreplaceable fighters at too much risk.

Short of cruise missiles, the only way of levelling out the aerial superiority problem is to launch a pre-emptive aircraft attack on...
the missile and radar positions. Military ob-
servers noted a strong indication that Armc-
cor is already working on a project of this
class as long ago as 1984. The missile expo-
sition in Chile, when Armscor unveiled an
unprecedentedly small, light gas turbine en-
gine. Only 32 cm in diameter, 1 m long and
63 kg in weight, the turbine was described as
cheap, simple, reliable and low-mainten-
ance, with a maximum operating life of only
20 hours.

Observers agree that while the dimensions
indicate it could be used for a Remotely
Piloted Vehicle (RPV) or drone, the short
effect life indicates a strictly one-way ticket,
whereas RPVs are re-useable machines.

There can be little doubt that all Armscor
needs is to develop a suitable guidance sys-
tem for a cruise missile to be a feasible
proposition.

It is also clear that Armscor R & D is
leaving heavy emphasis on long-range anti-
aircraft missile defences as a fairly cheap
way of countering the ever more advanced
aircraft being deployed by Angola and, po-
tentially, other neighbouring countries.

A small attack helicopter: The ground-
work for such a machine was laid with the
1986 unveiling of the two-man Alpha XH-1
experimental attack helicopter, the main ar-
mament of which was a 20 mm servo-con-
trolled cannon in a chin mount. The local
press immediately went overboard, lauding it
in one instance as "Airbok". In fact the
XH-1 was nothing of the kind. It was, one
expert observer concluded, a somewhat re-
built Alouette III.

Its raison d'être was actually to evaluate
the on-board weapons system. This consisted
mainly of the cannon — which was con-
trolled by the gunner's helmet sight and
capable of being elevated 10°, depressed 60°
and traversed 110° to either side. Reputedly
the XH-1 was also used for evaluating rocket
pods.

However, the Alpha or a development has
never gone into production. It has served its
purpose as a flying testbed, according to
Marais in a recent interview, and no require-
ment for such a helicopter has been formu-
lated by the SAAF; it would appear that pro
tem the greater need is for a larger attack-
and-transport helicopter.

At the same time Marais made it clear
that if the SAAF were to come up with a
requirement the Alpha project would be re-
surrected and developed further.

An attack-and-transport helicopter: This
project, in the shape of the XPT-1, is very
much in progress. The XPT-1 — raptures in
the popular press to the contrary — is not an
operational prototype but a slightly modified
Puma transport helicopter on which the ex-
pertise gained from the Alpha project has
been put to good use.

The XPT-1 mounts the same 20 mm hel-
met-sighted gun as the XH-1 and four out-
board pods firing the standard 68 mm air-to-
ground unguided rocket.

In an interview after the unveiling Marais
made it clear that SA now has the capacity
to build Puma-sized helicopters.

At the XPT-1's April 30 unveiling Marais
strenuously denied it was a pre-election stunt.
They had already lost a week on the
project, he said, and the very tight schedule
did not permit a further delay of 10 days or
so.

This impression was reinforced by Du
Plessis in his Budget speech in June, when he
made it clear that the programmes for de-
veloping the "combat support helicopter",
among other things, "have had to be initiat-
ed."

Armscor's ability, revealed at the April 30
press conference, to manufacture such high-
tech helicopter parts as gearbox and rotor
blades has astonished overseas observers. On
May 23 the respected Jane's Defence Week-
ly stated: "It ... showed photographic evi-
dence of a greatly-developed industrial base
for helicopter component manufacture ... even
allowing for SA's long-established tech-
nical expertise, European observers were as-

strongly interested as they were in a mini-
imum of 200 units being manufactured as
soon as possible."

There can be little doubt that all Armscor
projects in the area of research and develop-
ment for such a helicopter have been acceler-
at ed in the past few months. The small
attack helicopter is intended as a "light" and
economical replacement for the SAAF's
aginaging Westland ASW helicopters by
fitting it with the necessary on-board sys-
tems as well as providing a torpedo-launch-
ing and rocket-firing capability.

This would probably necessitate some re-
building of the two remaining anti-subma-
rine frigates' hangar and landing facilities,
since a Puma-sized helicopter would be con-
siderably larger and heavier than a Wasp.

More missile strike craft: There are now
nine strike craft known to exist, and it ap-
pears likely more will be constructed now
that the Navy's long-cherished dream to
build Corvettes has gone on the back burner.

Any new strike craft will probably look
considerably different from the existing
ones, since the harsh seas around the Cape
coasts have taught Armscor some lessons
about the Israeli-derived boats, which were
designed for the calmer waters of the Mediter-
ran sea.

A locally-built submarine: This is another
subject which is veiled in secrecy, but it
seems Armscor is working on a submersible
to complement and eventually supplant the
Navy's three Daphne-class vessels.

This is a long-standing requirement — in
the Seventies SA ordered two French
Agosta-class submarines and was about to
take delivery in 1978 when France finally
decided to observe the mandatory UN arms
embargo and slammed the door on Pretoria's
fingers.

The first hint of local production came in
1982 when Con Botha, National Party MP
for Umlazi, said in parliament that SA
would soon have to consider building its own
submarines.

In the same speech he mentioned that
a new supply ship would soon be built — and
sure enough, "SAS Drakensberg" was
launched in April last year.

Subsequently the speculation was renewed
when Captain Evert Groenewald, command-
ing officer of the submarine flotilla, pointed
out that the life expectancy of a submarine
was 20 to 25 years — and the Daphnes had
been bought from France in the early Seven-
ties. This means they have now reached half-
life, and it is possible that they will be up-
graded as an interim measure while
construction of a local sub proceeds.

Technically both projects appear entirely
feasible. The Navy and Armscor have ac-
quired a great deal of expertise from the
periodical stem-to-stern refitting of the
Daphnes.

In addition, Armscor probably has the
necessary blueprints. In November last year
it became known the West German govern-
ment was investigating a foremost builder of
submarines, Howaldtswerke-Deutsche
Werft AG (HDW), for allegedly selling a set
of blueprints to SA for Dm46m (about
R52m).

It is certain any home-grown submarin-
would be built at Armscor's Sandoek Austra-
yard in Durban. The yard has the necessary
capacity and expertise, having built all the
locally-produced strike craft as well as the
fleet replenishment ship "SAS Drakensberg",
perhaps the largest ship ever constructed in
SA.

Armscor spokesmen make no secret of the
fact that the yard could build a moderate-
sized submarine, and last year, when asked
about the possibility of such a project, Armc-
cor spokesmen Johan Adler would only make
the guarded but interesting comment that
"we're not that far down the line yet."

Adler conceded the naval dockyard at
Simonstown was also a possibility. However,
he added, a Durban-based project would be a
great boost to the very depressed shipbuild-
ing industry, which had suffered severely
because of the recession and the world over-
supply of tonnage.

Strike craft ... Mark II in the pipeline?
END CONSCRIPTION CAMPAIGN (ECC)

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