SOROTAN DARAT

JURNAL TENTERA DARAT MALAYSIA

THE HOUSE JOURNAL OF THE MALAYSIAN ARMY

— artikel kulit muka

SEMBOYAN — PERTAHANAN ELEKTRONIK

UNTUK REJIMEN ARTILERI MALAYSIA

DISEMBER 84 **BIL 6**

JILID 1 DISEMBER 1984 BIL 6

Kandungan

Di dalam pelbagai operasi ketenteraan, perkhidmatan oleh Kor Semboyan Angkatan Tentera sering memainkan peranan yang sangat 'significant'. Segala Peralatan perhubungan dan fungsi-fungsinya adalah dianggap sebagai nadi penggerak gerakan-gerakan pada sebarang ketika. Gambar kulit yang direka khas bagi jurnal ini menunjukkan kegiatan sekumpulan wira dari Kor Semboyan di hutan belantara negara.

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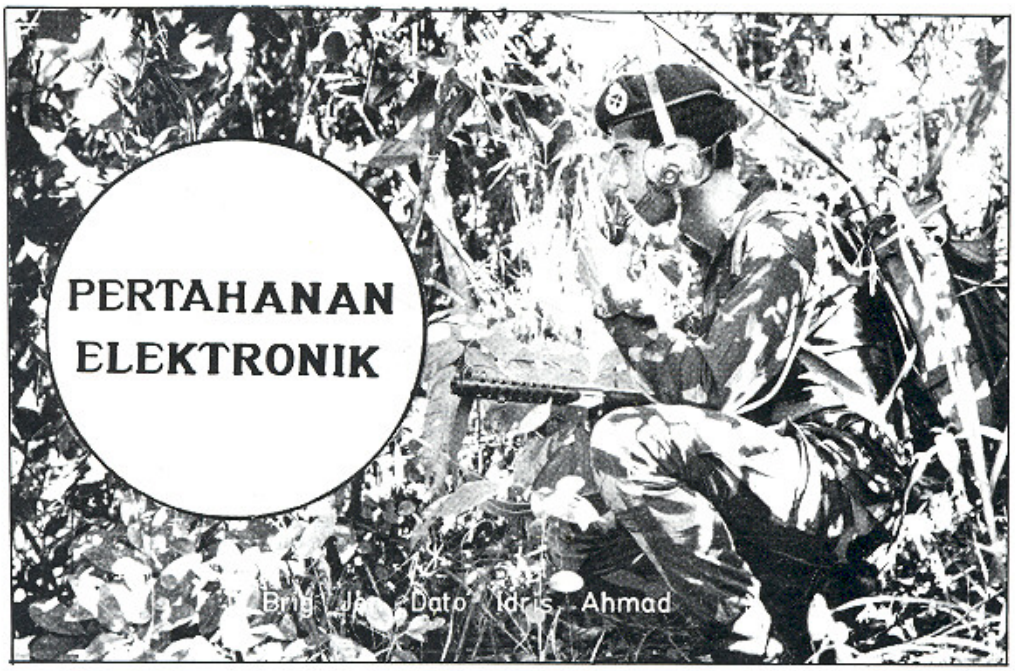


AM

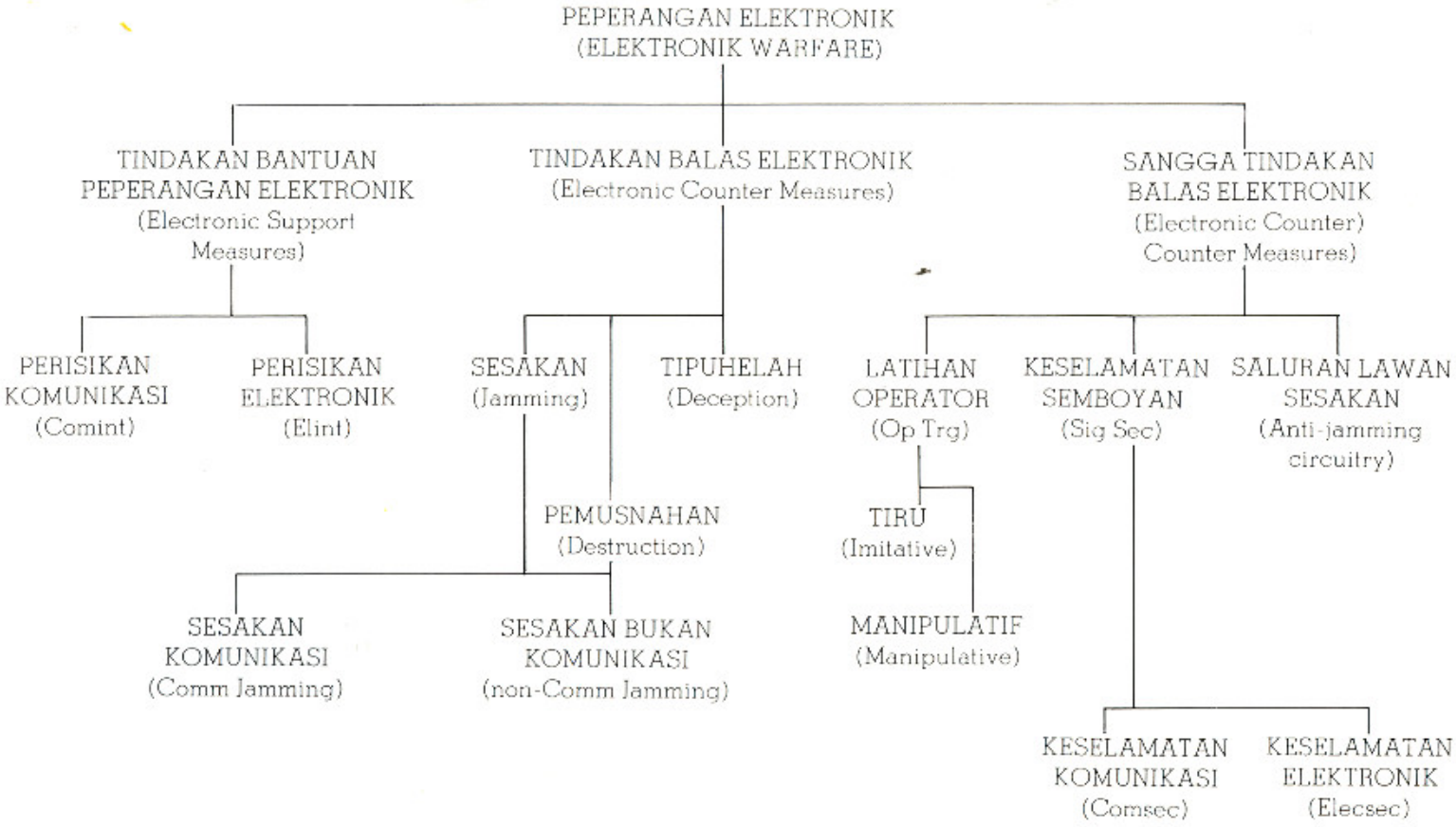
Sebelum Pertahanan Elektronik dapat diperkatakan dengan mendalam, kita perlulah memahami peperangan elektronik (electronic warfare) sebagai fahaman dasar. Peperangan elektronik (lihat rajah i) terbahagi kepada tiga bahagian : tindakan bantuan peperangan elektronik (electronic support measures), tindakan balas elektronik (electronic counter measures) dan sangga tindakan balas elektronik (electronic counter counter measures). Tindakan bantuan peperangan elektronik ialah bahagian yang 'pasif' yang mana tindakannya tidak dapat dikesan atau dirasai oleh mangsanya. Tindakan mengesan, memintas (interception) dan menganalisa pancaran serta mencari arah (direction finding) ialah tindakan-tindakan yang boleh dilakukan oleh pihak musuh dengan tidak disedari. Tindakan balas elektronik pula ialah bahagian yang 'aktif'. Ia mengandungi tindakan-tindakan seperti tipuhelah (deception), pemusnahan alat radio dan sesakan (jamming). Sangga tindakan balas elekronik pula ialah bahagian tindakbalas atau pertahanan elektronik yang kita perlu lakukan bagi menyelamat kegunaan alat-alat terhadap kedua-dua bahagian, tindakan bantuan peperangan elektronik dan tindak balas elektronik yang diusahakan oleh musuh.

Tujuan

Tujuan rencana ini ialah untuk membentangkan kepentingan sangga tindakan balas elektronik dan tindakan yang perlu dilakukan untuk pencapaian mutu pertahanan elektronik yang tinggi.

SANGGA TINDAKAN BALAS ELEKTRONIK

Sesiapa juga yang memahami prinsip



RAJAH 1 AKTIVITI PERANG ELEKTRONIK

elektronik akan mengetahui bahawa pemancaran radio tidak terhad kepada pancaran alat-alat komunikasi sahaja. Apa sahaja jenis peralatan elektronik seperti 'homing beacon', radar, sistem pengawalan senjata, peluru berpandu, sistem kawalan jauh (remote control) dan semua alat elektronik komunikasi berupaya memancar gelombang radio; oleh kerana semua pemancaran ini adalah merupakan gelombang radio, ia adalah senang dipintas atau diganggu. Tindakan mengganggu ini boleh memporak-perandakan sistem peralatan elektronik yang berkenaan, sehingga tidak dapat diguna sebagaimana yang dimaksudkan.

Satu-satu tindakan balas elektronik terhadap peralatan elektronik pasukan lawan adalah hasil dari usaha-usaha pengesanan, memintas, menganalisa dan pencarian arah yang dilakukan oleh *aktiviti perisikan elektronik*. Dengan yang demikian sebagai pengguna alat-alat elektronik, kita seharusnyalah mencari jalan supaya pancaran gelombang radio yang dipancarkan oleh apa sahaja jenis peralatan elektronik kita tidak dapat dikesan oleh pihak musuh. Dengan lain perkataan kita perlu meninggikan taraf kebolehan pertahanan elektronik, yang lebih terkenal dengan nama *sangga tindakan balas elektronik*.

Rencana ini hanya menumpukan perbincangan sangga tindakan balas elektronik dari aspek komunikasi sahaja. Peralatan elektronik yang lain mempunyai ciri-ciri tertentu yang mana tidak dapat diperkatakan dalam rencana ini.

Memasang Alat Semboyan

KOMUNIKASI RADIO

Komunikasi dengan cara radio dalam situasi taktikal (dengan lebih jelas penggunaan rangkaian radio) adalah cara yang paling ekonomis untuk melaksanakan 'command and control'. Ini adalah benar jika dipandang dari segi pembahagian, persiapan dan pentadbirannya. Dengan jururadio yang terlatih dan berpengalaman, rangkaian pemerintah boleh dipersiapkan dalam beberapa minit sahaja. Ia boleh dianggap sebagai suatu sistem komunikasi yang paling mudah dan murah untuk dibekalkan. Jika dirancang dan dikendalikan dengan teratur, satu-satu pergerakan formasi tidak akan menjejas kebolehan komunikasi cara ini.

Oleh kerana kemudahannya yang amat senang untuk disediakan, sistem komunikasi radio juga adalah yang paling senang dipintas oleh pihak musuh. Aktiviti perisikan elektronik musuh yang menggunakan sistem pengawasan yang asas sahaja akan dengan mudah dapat mengesan dan memintas semua pancaran yang kita lakukan.

Untuk mendapatkan pancaran kita, pihak musuh hanya perlu mengawasi semua frekuensi yang diguna oleh pasukan kita; dan apabila terdengar satu-satu pancaran dia akan terus melakukan pengesanan dan pemintasan dalam frekuensi yang dipilih. Dengan bantuan alat penerima yang moden, *tugas mencari sesuatu frekuensi yang dikehendaki akan dapat dilakukan secara automatik dalam beberapa minit sahaja*. Satu-satu pancaran radio yang panjang akan lebih menyenangkan pihak

musuh mengesan.

Dengan kelemahan yang sedia ada dalam keselamatan komunikasi cara radio ini, beberapa tindakan keselamatan perlu diambil untuk menyusahkan pihak musuh dari mengesan dan seterusnya memintas serta mengenali komunikasi kita. Tindakan-tindakan yang berikut ini akan menyusahkan pihak musuh untuk mengesan pancaran kita:

- Penukaran frekuensi -menyusahkan untuk dikesan.
- Penggunaan prosedur yang standard - susah untuk mengenali pengguna.
- Penggunaan gelaran jawatan, kata kod dan nama gelaran.
- Penggunaan tanda panggilan tetap 'stndard' dalam semua pasukan.
- Penggunaan 'kod suara' seperti slideks dan griddle atau sebagainya.
- Menentukan pancaran seberapa pendek yang boleh.

Menentukan Frekuensi

Kita dapati bahawa semua yang disebutkan di atas adalah terkandung di dalam prosedur percakapan radio yang sedang diamalkan sekarang. Dengan yang demikian kita telahpun menganuti tindakan keselamatan yang diperlukan. Namun demikian, tindakan secara di atas ini hanyalah berkesan jika kita mematuhi semua prosedur pertuturan dengan tekun dan tidak melanggar mana-mana perosedur yang telah ditetapkan.

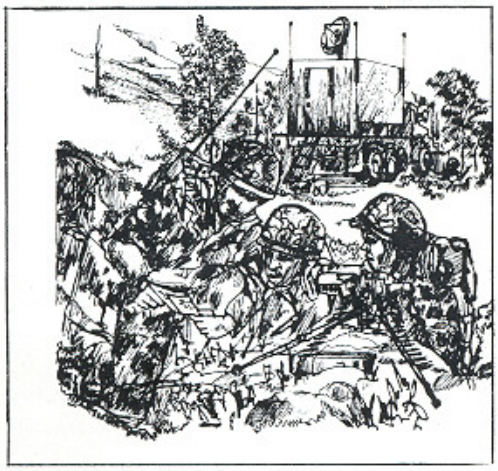
Walaupun cara mempraktikkan tindakan keselamatan seperti yang disebutkan di atas dapat mengelakkan pancaran kita dari difahami oleh pihak musuh; namun demikian, ***dengan pengawasan yang bijak dan teliti, serta dibantu oleh peralatan pengesan elektronik moden, semua pemancaran radio akan dapat dikesan dan jika perlu dipintas dan dirakamkan.*** Seterusnya dengan penganalisaan pancaran-pancaran yang dirakam, pihak perisikan musuh akan dengan mudahnya dapat menggambarkan kekuatan, lokasi, pergerakan dan rancangan satu-satu formasi tentera kita. Ini bermakna kesan tindakan perang elektronik yang dipraktikkan setakat ini hanyalah pada peringkat jangkamasa pendek sahaja. Tindakan kita adalah tidak mencukupi bagi jangkamasa yang lama dan bagi keperluan strategik.

Satu *tindakan positif* haruslah dilakukan demi menjaga keselamatan komunikasi kita. Kita harus mencari jalan supaya pancaran kita susah untuk dikesan, dan kita harus mencari jalan supaya seandainya pancaran kita dikesan, ia akan susah difahami oleh musuh dan dengan itu sukar untuk mendapatkan maklumat berkenaan unit-unit dan formasi kita. Di mana perlu dan jika sesuai pancaran kita juga perlu ***dikawal dari diganggu oleh musuh.***

Dari apa yang telah diperkatakan di atas nyatalah bahawa sangga tindakan balas elektronik ialah tindakan yang perlu diambil oleh semua pengguna alat perhubungan yang menggunakan alat pemancaran radio. Dengan yang demikian ia adalah tanggungjawab pihak pengguna alat komunikasi dan bukanlah tanggungjawab cawangan peperangan elektronik yang tertentu sahaja seperti yang diutarakan oleh setengah-setengah pendapat. Terputusnya komunikasi bermakna pihak pemerintah akan hilang kuasa "command and control". Oleh itu semua pemerintah dan staf di semua peringkat perlu menentukan pakar komunikasi mereka cekap dengan aktiviti sangga tindakan balas elektronik.

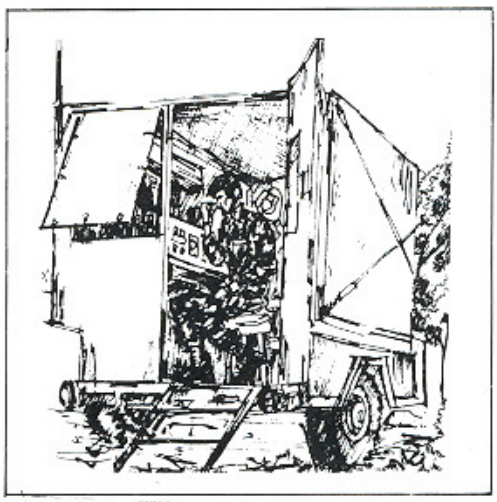
PERALATAN SANGGA TINDAKAN BALAS ELEKTRONIK

Semenjak terciptanya peralatan komunikasi yang menggunakan pancaran radio, pengguna-pengguna telah menyedari akan betapa senangnya maklumat-maklumat yang dipancarkan oleh alat radio dapat dipintas oleh sesiapa sahaja yang ingin berbuat demikian. Pencipta-pencipta dan para bijak pandai di lapangan ini sentiasa berusaha untuk mencipta cara yang sesuai, supaya pancaran radionya tidak dapat dikesan dan dipintas, ataupun difahami oleh pihak yang memintas. Di antara tindakan-tindakan yang telah termaklum ialah sebagaimana yang telah diterangkan di perenggan-perenggan di atas. Namun demikian, cara-cara yang demikian masih terdapat banyak kelemahannya. Kelemahan-kelemahan yang nyata merupakan disiplin pengguna yang pada amnya selalu terdapat pengabaian dari segi pengguna prosedur.



Perhubungan di kala Operasi

Menyedari akan kelemahan-kelemahan yang telah disebutkan, pengkajian dari segi peralatan dilakukan terus menerus oleh pencipta-pencipta peralatan komunikasi elektronik. Hasil dari kajian mereka itu, beberapa peralatan telah dicipta. Di antara alat yang telah terkenal ialah alat-alat 'encryption', 'burst data transmission' dan 'frequency hopping radio'.



"Rain or Shine" Sebilang Waktu

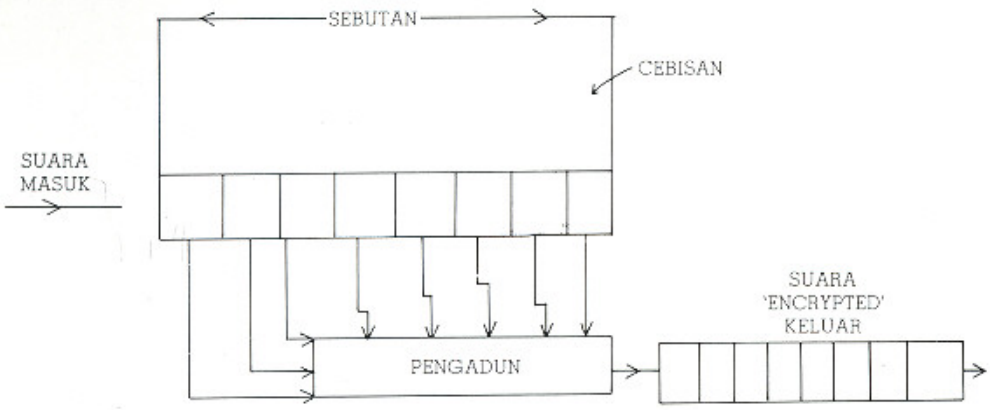
Alat 'Encryption'. Peralatan 'encryption ' atau kripto ini terbahagi kepada dua jenis, 'voice encryption' dan 'telegraphic encryption'. Kedua-dua alat ini dicipta untuk tugas yang tertentu.

a. Sebagaimana nama panggilannya 'voice encryption' adalah dicipta khas untuk melindungi lisan yang dipancarkan melalui radio dari difahami setelah dikesan dan dipintas. Teknik yang digunakan ialah secara memecahkan sebutan perkataan kepada beberapa cebisan (segment). Cebisan-cebisan ini dicampuraduk sebelum dipancarkan. Apabila diterima, cebisan ini disusun semula, dicantumkan dan hasilnya ialah kata-kata yang dipancarkan. Rajah 2 adalah gambaran yang dimaksudkan.

b. *Telegraphic encryption* pula ialah satu teknik untuk melindungi perutusan yang dipancarkan melalui telegraf, biasanya teleprinter. Teknik yang digunakan ialah berlainan dari teknik *voice encryption*. Teknik ini lebih dikenali dengan panggilan *cypher*. Pada dasarnya sebelum huruf-huruf dipancarkan, *ia diproses dengan penyamaran dan dicampur-aduk dengan huruf-huruf lain (mengikut kod 'setting') baharulah dipancarkan*. Di stesen penerima, proses sebaliknya dilakukan untuk mendapat huruf huruf yang asalnya. Rajah 3 adalah contoh yang dimaksudkan.

Penerangan yang dibuat di atas adalah secara dasar sahaja. Proses penyamaran seperti yang disebutkan di atas menggunakan teknologi yang tinggi yang menggunakan 'micro processor' dan 'memory chips' yang termoden serta pengendalian sistem kod-kod yang memerlukan pengawasan dan pentadbiran yang kompleks.

Alat Burst Data Transmission. Salah satu daripada cara untuk menjauhi pancaran radio kita dari dapat dikesan dengan mudah ialah dengan menentukan pancaran radio dilakukan seberapa pendek yang boleh. Sistem *burst data*



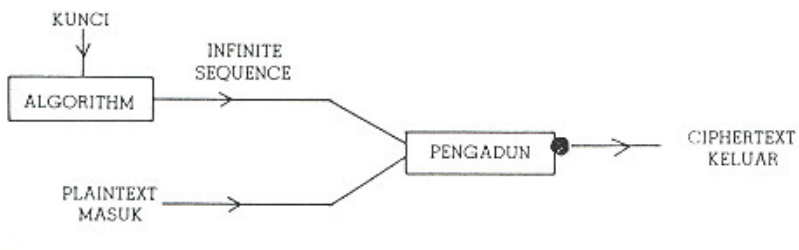
RAJAH 2 SATU CARA 'VOICE' ENCRYPTION

transmission ini adalah khusus untuk pancaran *telegraphy*. Pada kebiasaannya apabila kita menggunakan sistem lama, jangkamasa pancaran satu-satu berita adalah *tergantung kepada had laju juruteleprinter menaip*. Ini ialah kira-kira 30-40 perkataan seminit. Keadaan ini adalah terlalu panjang dan boleh mengambil masa di antara 10-15 minit atau lebih untuk menghantar berita yang mengandungi satu muka. Dengan masa pancaran yang begitu panjang, akan menyenangkan pihak musuh untuk mengesan dan memintas berita yang dihantar itu. Jururadio yang cekap juga hanya dapat menghantar antara 20-25 perkataan seminit dengan mengguna cara *morse*. Ini bermakna masa yang lebih panjang diperlukan untuk menghantar satu-satu berita tersebut.

Teknik yang digunakan dalam alat "burst data transmission" ini adalah dengan cara menyimpan berita yang ditaip di dalam *memory*. Setelah selesai perutusan itu ditaip baharulah dipancarkan secara laju *burst*. Lajunya pemancaran ini ialah kira-kira di antara 200-250 perkataan seminit. Ini bermakna ia hanya mengambil kira-kira satu minit untuk memancarkan berita yang mengandungi satu muka surat.

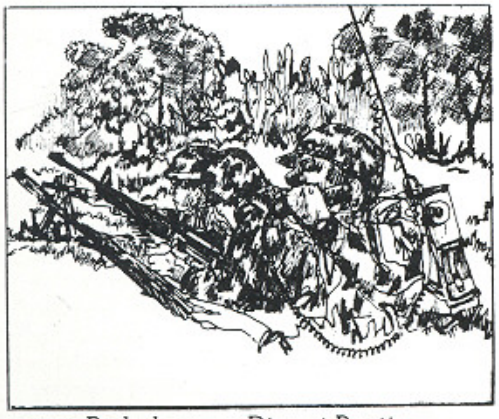
Frequency Hoping Radio. Teknologi yang terbaharu dicipta khas untuk penguna radio meninggikan mutu pertahanan elektronik ialah dengan menguna alat radio *frequency hopping*. Sehingga dewasa ini teknik *frequency hopping* boleh didapati dalam radio jenis VHF dan UHF sahaja. Radio jenis HF yang menggunakan teknik ini masih di dalam penyelidikan. Mengikut trend sekarang, adalah dianggarkan radio HF *frequency hopping* akan dipasarkan dalam jangkamasa dua tahun lagi.

Teknik *hopping* yang digunakan ialah merupakan teknologi yang terbaharu dalam teknologi elektronik. Secara ringkas, pancaran radio ini berkisar di dalam satu *frequency band*. Dalam satu saat pancaran radio jenis ini berkisar di antara 250-500 'channel' secara bercampur-aduk. Ini bermakna pan-



RAJAH 3 SATU CARA STREAM CIPHER UNTUK TELEGRAPHY

carannya tidak tetap pada satu frekuensi sahaja, sebagaimana lazimnya dilakukan oleh radio jenis biasa. Mengikut perkiraan paling lama pancaran *frequency hopping* hanya menetap di satu-satu frekuensi kira-kira 0.004 saat sahaja dan terus berkisar di frekuensi yang lain. Ini menjadikan terlalu sukar untuk mengesan pancaran radio jenis ini. Dengan alat pengesan biasa, pancaran radio jenis ini adalah mustahil untuk dikesan. Dengan yang demikian ia merupakan satu jenis radio yang mempunyai pertahanan elektronik yang kuat.



Perhubungan Di saat Penting

KESIMPULAN

Semua pemancaran elektronik *boleh dikesan, dipintas, dan jika dikehendaki, dipurak-perandakan oleh pihak musuh dengan mudah.* Untuk menghindari dari perbuatan ini semua pengguna alat-alat pancaran elektronik mestilah bersedia dan melakukan tindakan pertahanan elektronik bagi tujuan menyelamat dari tindakan bantuan peperangan elektronik pihak musuh.

Cara menghindarkan dari tindakan perisikan komunikasi dan elektronik pihak musuh ada terbahagi kepada dua bahagian :

★ Cara pertama ialah tindakan pengguna secara mematuhi prosedur yang ditetapkan. Cara ini tidaklah menghalang pihak musuh dari memintas pancaran kita. Namun demikian, ia akan merumitkan musuh dari *memungut maklumat yang dikehendaki dengan senang.*

★ Cara kedua ialah dengan penggunaan *salah satu atau semua jenis alat* yang dicipta khas untuk pertahanan elektronik.

PENUTUP

Teknologi elektronik telah, sedang dan akan terus berkembang dengan pesat. Sebagai ingatan, perang elektronik berjalan terus, sama ada dalam situasi aman, perselisihan politik, apatah lagi dalam situasi peperangan.

Menganggap semua pancaran radio kita selamat dalam situasi aman adalah satu anggapan yang salah. Kita harus mencurigai dan menyedari bahawa tiap-tiap pancaran yang kita lakukan setiap masa adalah dapat dipintas oleh pihak musuh. Dengan yang demikian kita haruslah sentiasa mencari jalan dan mengambil tindakan yang positif untuk menggunakan prosedur dan pertahanan elektronik yang dapat menjamin kegunaan alat-alat radio kita.

Adalah diakui bahawa peralatan yang sofistikated ini adalah mahal, namun demikian keselamatan maklumat kita mestilah dianggap lebih mahal dari harga peralatan yang dapat menjaminnya.

Brig Jen Dato' Idris bin Ahmad pada masa ini ialah Ketua Pegawai Semboyan, Rejimen Semboyan ATM. Beliau telah ditauliahkan di Mons OCS UK ke dalam Royal Signals dalam tahun 1959 dan bertukar ke Rejimen Semboyan pada tahun 1963. Disepanjang perkhidmatan, beliau telah terpilih untuk menghadiri kursus-kursus khas Semboyan di seberang laut. Di samping pernah memegang jawatan-jawatan penting di dalam Rejimen Semboyan, beliau juga pernah berkhidmat sebagai Penasihat Tentera di Kedutaan Malaysia di Jakarta pada tahun 1979/80 sebelum memegang jawatan sekarang.

MALARIA

as a military problem

Lt Kol (Dr) V. Subramaniam

Malaria is the important communicable disease in the field. The importance of malaria during wars and the current situation in the country is outlined. Our malaria incidence from the 50s to 1983 and the changes in the chemosuppressive use to meet the increases in the incidence is mentioned. The importance of individual chemosuppression with the resulting consequence of lapse of malaria discipline in the Second World War and later in the Vietnam War and also in our own Army is mentioned. Drug resistance in the country is given and finally the control programme in our Army is tabulated.

INTRODUCTION

Malaria is a major public health problem of the country [1] and the Malaysian Army's major communicable disease in the field [2]. Though there is an insignificant loss of life, considerable illness with loss of working days results from it to the extent of even jeopardising military operations. This article describes the malaria problem in our Army with special emphasis on chemoprophylaxis compliance.

LIFE CYCLE OF MALARIA PARASITES

Malaria is caused by four species of **Plasmodium: falciparum**, the predominant species in the country, **vivax**, **malaria** (rare) and **ovale** (not found here). It is transmitted to man by the bite of an infected female anopheline mosquito which injects saliva containing parasites into the blood stream. They enter the liver cells, where they multiply and later enter the blood stream and infect red blood cells where further growth

and multiplication occurs. After 12 to 28 days from the time of infective mosquito bite, depending on the type of parasite, symptoms of malaria result of which fever with chills is the most common. The person is now infective and when a female anopheline mosquito feeds on his blood, malaria parasites are sucked with it. After an incubation period of 10 days in which the parasite matures and reproduces itself inside the mosquito, it is ready to infect other individuals and continue the life cycle[3].

MALARIA DURING WARS

Malaria has been a military problem in the past and continues to be in many parts of the world. The armies of Julius Caesar, Alexander the Great, Tiberius and many others suffered heavily from malaria. The many wars that were waged down the centuries from the Crusades to the World Wars exacted a heavy toll from malaria.

During the Second World War, troops engaged in tropical areas suffered five to thirty times from sickness as battle casualties and malaria was the leading cause. In the Far East, it was a more serious menace than the Japanese. The Allied troops suffered heavily. In the campaign for Wewak in New Guinea in 1945, the Australian 6th Division suffered 442 killed in action with 1141 wounded. The admissions to hospital for medically sick were, however, 16203 of which 6227 were for malaria. Battle casualties were only 8.9% compared to 91.1% for sickness and malaria constituted 38.4% of all medically sick[4].

MALARIA IN THE COUNTRY

Malaria has been described in this country from its early days and it has caused considerable mortality and morbidity. Whole villages have been wiped out by malaria[5]. Limited control measures were introduced at the beginning of this century and only on 1st July 1967 a national malaria eradication programme for Peninsular Malaysia was launched at an estimated cost of 85 million ringgit. Malaria cases were then estimated to be about 300,000 per year. It has been successfully reduced to 10069 cases with 17 deaths in 1983. Over the years the Malaysian Armed Forces accounted for seven to thirteen per cent of these cases. The police Field Force contributed three to eight per cent primarily due to their lower force level in operations. The villagers are still the largest contributors of malaria cases, but decreasing over the years. Due to various problems, eradication is no longer possible and is now only aimed at control[6]. The problem areas are the Thai-Malaysia border regions, land schemes and orang asli areas.

Sabah and Sarawak malaria control programmes are run separately from the Peninsular Malaysia programme. Sabah's control programme, begun in 1973, has suffered reverses due to various problems and the cases shot up from 13,908 in 1970 to 50,037 in 1981. However, they have managed to bring it down to 11,290 in 1983[7]. Sarawak began its eradication (now only control) programme in 1961. The cases have dropped substantially from 1,643 in 1971 to 859 in 1983[3].

[The annual incidence rate per 1000 serviceman is tabulated in its grafic form at Figure 1]

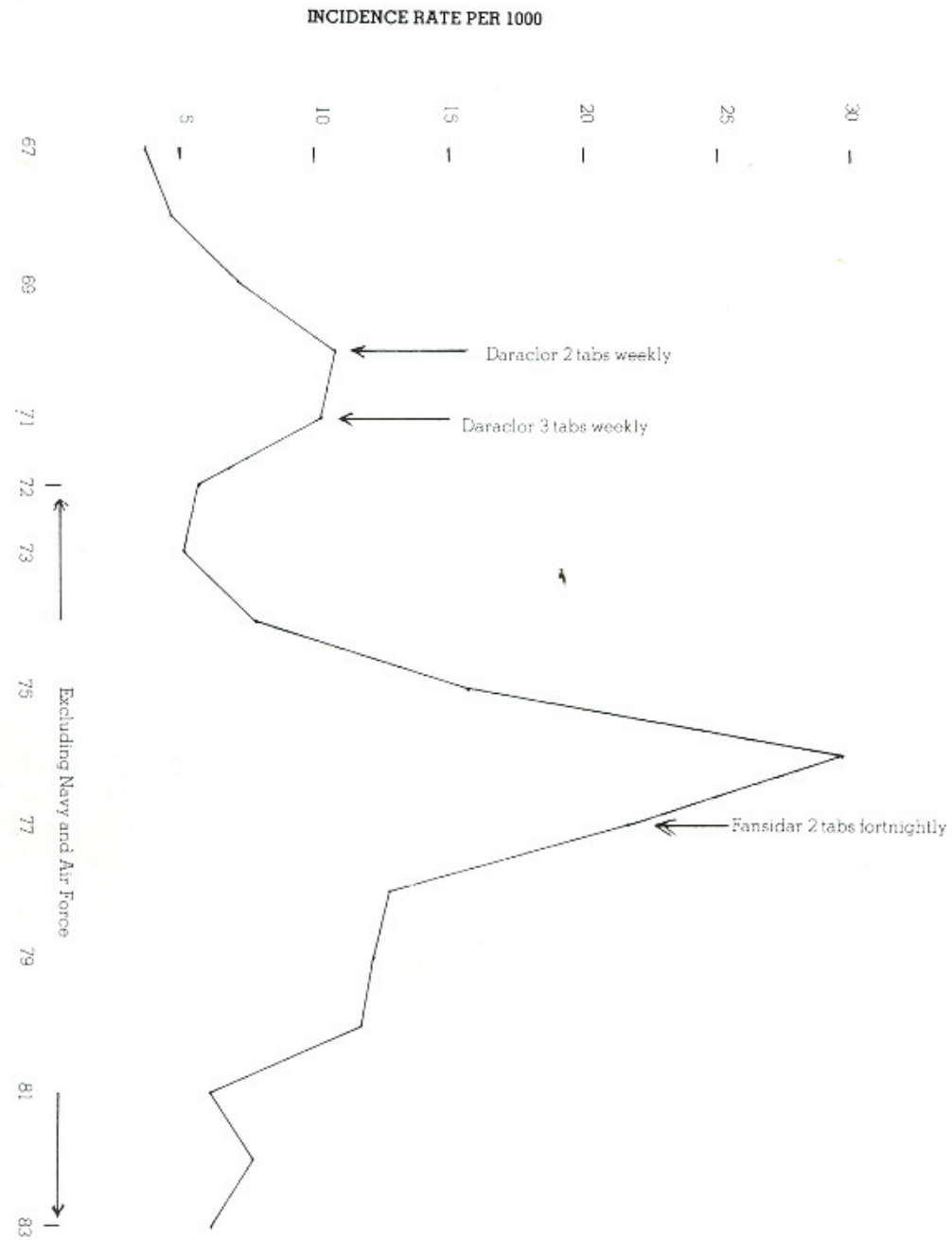


FIG 1. MALARIA - ANNUAL INCIDENCE RATE PER 1000 SERVICEMAN

MALARIA IN OUR ARMY

Incidence. Figure I shows the annual incidence of malaria infections (here, defined as cases with symptoms and a positive peripheral smear). The incidence of malaria in Malaysian soldiers was low in the 50s and was achieved with the use of the chemosuppressive, proguanil hydrochloride (trade name Paludrine) 100 mg daily. This was used by the British forces and continued by our soldiers when we became an independent nation .

In 1962, proguanil hydrochloride was phased out and Daraclor (combination of 150 mg chloroguine and 15 mg pyrimethamine per tablet) was introduced at a dosage of one tablet per week after a field study in 1961/1962 showed Daraclor was equally effective and cheaper. An earlier study in Ghanian soldiers in 1960 had also shown it to be highly effective in suppressing malaria [9] . However, it is still a safe drug and is used, for example, by the New Zealand soldiers as a chemosuppressive.

The incidence of malaria continued at a low level but from 1967 showed an upward trend. In 1969, due to increased operations along the Malaysian-Thai border area where chloroquine-resistance **P. falciparum** was present, the incidence went up. To counter it, Daraclor was increased from 1 to 2 per week (3 days apart) after a study indicated that one tablet was insufficient to combat the parasites adequately. The incidence dropped to 10.2/1000 servicemen in 1971. An in vivo study of chloroquine-resistance established the presence of chloroquine-resistance at RI level (i.e. the asexual parasites disappeared within 7 days after treatment, followed by reappearance of patent infection). The dose of Daraclor as chemosuppressive was increased to 3 per week (one on alternate day) from mid 1971. 1972 and 1973 saw a dramatic drop of the incidence to 5.8/1000 and 5.4/1000 respectively. In 1974 it started its upward trend and reached an all-time high of 29.7/1000 in 1976. The following year, the incidence fell to 21.6/1000. In March 1977, Fansidar (fixed combination of 150 mg sulphadoxine and 75 mg pyrimenthamine per tablet) was introduced after an epidemic of 240 malaria cases occurred among troops in January/February 1977 operating in the Sadao District of south Thailand. This outbreak was because of the presence of chloroquine-resistant strains of **P. falciparum** against which Daraclor was ineffective. Subsequent operations with Fansidar as chemosuppressive in this region did not cause any further outbreak [11] . In 1978, the incidence further dropped to 12.6/1000. The decrease in incidence has continued and from 1981, it has been below 10/1000. Mortality has been low - 12 from 1970 to 1983. Fansidar has now been established as the drug of choice for chemosuppression in areas where chloroquine-resistance is present or where there is a high index of suspicion of its presence and Daraclor in all other areas. Both drugs are effective and safe chemosuppressives. Daraclor has been used for over 20 years and Fansidar since 1977 and no side-effects have been encountered at current dosage levels. Impotence to Daraclor has been mentioned though this is more imagined than real.

CHEMOSUPPRESSIVE USE

Chemosuppressive (drug to prevent the clinical symptoms of a malaria infection) use has been the primary weapon in the fight against malarial parasites in the jungle. The choice of a chemosuppressive is based on several factors -effectiveness, cost, availability, accep-

tance by the population and local epidemiological pattern of malaria. The mere presence of an effective chemosuppressive agent is insufficient to ensure protection against malaria. To be effective, the agent must be regularly consumed at the recommended dosage. Unfortunately, compliance has been a major problem with troops everywhere. The British, the US troops and the Australians all had their fair share of it. A study of an outbreak in 1971 at a US air base in Vietnam indicated that only 39.5% of base personnel were taking the antimalaria tablet and among security police squadron its was only 24%. With strict malaria discipline, no further cases occurred[12]. In another study of malaria cases in returning servicemen to US, it was found that 70% of 671 soldiers did not take the tablets or only had an incomplete course[13]. To overcome such problems, the British "organised Paludrine parades" usually at platoon levels. A Paludrine tablet (100 mg) was given out by the officer i/c of platoon on the early morning parade. He saw the soldier take the tablets and swallow it (after which the soldier repeated his name and number). This was then recorded in the Paludrine diary. The same procedure was followed at the evening dismounting parade. If a section was out on patrol, the NCO i/c the party carried out the same procedure and recorded the issue of the drug. Soldiers proceeding on leave were given the requisite number of tablets to cover the period. These were issued in cellophane strips and stapled to the leave pass. Drivers and others who might be absent on duty at times of parade were issued with Paludrine and a "Paludrine Card". The tablets were to be taken in the presence of an NCO or officer who would sign the entry in the soldier's card"[14]. An American study recommends a similar procedure of visual observation of ingestion of the tablet with a glass of water for 100% compliance[12]. In our army, the Armed Forces Council instruction states that it must be given under supervision[15] but the extend of compliance is unknown.

ANTI MALARIA DISCIPLINE AMONG OUR SOLDIERS.

In our own soldiers, lapse of Daraclor discipline has been noted frequently. An outbreak with 19 cases of malaria in June 1972 in Sabah in Pulau Tambisan and another 75 cases in Pulau Banggi in November/December 1972 among soldiers stationed on these islands were investigated and found to be due to poor Daraclor discipline. The 1972 annual report of Region Two comments on the situation as follows: "These outbreaks thus present more then convincing evidence that the dangers of malaria continues to exist, and that strict practice of preventive measures as promulgated from time to time is the key to success in the fight against malaria". Outbreaks continued to occur on Pulau Banggi in 1973, 1974 and 1975 and the 1975 annual report of Region Two notes "cases continue to occur because they are not following Daraclor regime or that they are not following it strictly". In 1975, one unit on operational duties in Air Kala area in Sungai Siput for a two month period suffered 84 cases[16]. The 1976 Armed Forces annual health report remarks that "lack of Daraclor discipline among our troops could be one great factor", in the upsurge in the incidence of malaria in 1976. In 1978, 120 cases were suffered by a unit on battalion retraining in Hutan Simpat, Bt 10, Tawau[17]. In 1983, 66 cases occurred in a unit operating along the East-West Highway. Compliance is one of the problems noted in this unit[18]. The story of malaria continues on the same note. Year after year, unit after unit experiences outbreaks whether in static locations, operational

SOURCE OF INFECTION (CASE.CARRIER)		PROTECTION OF SUSCEPTIBLE HOST (SOLDIER)
1. Early diagnosis and adequate treatment.	A. Adult Anopheles Vector: 1. Residual insecticide spraying (DDT Emulsion). 2. Space Sprays.	1. Individual chemosuppression under supervision.
2. Notificatipn.		2. Malaria transmission occurs primarily between dusk and dawn due to the Anopheles mosquitoes feeding habits. To reduce risk of infection during these hours: (a) Wear long trousers and shirts with long sleeves to cover the legs and arms respectively. (b) Apply insect repellent to exposed areas of skin. (c) Sleep under mosquito nets with no holes and well tucked in. (d) Remain under mosquito-proof tentages, where possible. (e) Use space sprays such as knockdown spray to kill adult mosquitoes.
3. Follow-up.	B. Aquatic stage of Vector: 1. Larviciding of water surfaces (Abate 500E). 2. Elimination of breeding places. 3. Modification of breeding places.	3. Siting of camps at least half a mile (average flight range of mosquito) away from mosquito breeding places and from infected villages.
4. Screening.		
5. Education of the soldier.		
Responsibility: Regimental Medical Officer	Antimalaria Staff	Regimental Officers

TABLE 1 — MALARIA CONTROL MEASURES TRANSMISSION ROUTE

duties or on retraining exercises and most often it is due to a breach of Daraclor discipline.

DRUG RESISTANCE

One major problem with chemosuppressive use is the drug resistant malaria parasite **(P. falciparum only).** In our country, resistance (defined as the ability of a species of malaria parasite to tolerate drugs in concentrations which would normally destory it) has been reported to Paludrine and chloroquine. The first chloroquine-resistant cases were recorded in 1962 among British Commonwealth troops operating in Perlis near the Thai-Malaysian border in late 1962. Fifty-three cases came down with malaria even though they were on 200 mg daily Paludrine [14]. In early 1968, chloroquine-resistant **P.falciparum** cases were reported among the British troops who took part in jungle exercises in Kota Tinggi and Mersing areas [19]. However, the picture is not static and no further resistant cases have been reported in Johore state. U.S. forces in Vietnam in 1965 suffered an attack rate of one per cent per day for combat troops in spite of chloroquine-primaquine prophylaxis [20]. Our own experience in 1977 in south Thailand of chloroquine- resistance has already been mentioned. Cases of chloroquine resistance have now been established in other areas especially areas bordering Thailand, Raub, Cameron Highland and parts of Sabah. Daraclor still remains our primary drug and Fansidar is used in the above mentioned areas. Though malaria control programmes are in operation in our neighbouring countries - Brunei, Indonesia, Philippines and Thailand - malaria is still endemic in many parts of their countries [21]. Resistance to Fansidar has been reported in our country [22], Thailand [21], Indonesia [23] and Philippines to chloroquine and quinine [24]. Singapore is the only Asean country free from malaria [25].

OUR CONTROL PROGRAMME

Our programme of control of malaria is given in Table 1 [26]. All elements are important from adequate treatment of cases to environmental control in the base camps to individual measures including chemosuppressive use. The drug should be taken under supervision not only while in the field on operations and exercises but also two weeks before departure and three tablets of Fansidar statum after returning to base as per current recommendations. The key to malaria prevention thus rests with the regimental officers in their ability to implement a good malaria discipline programme. General Slim's words are relevant today as they were then: "Good doctors are no use without good discipline. More than half the battle against disease is fought, not by the doctors, but by the regimental officers. It is they who see that the daily dose of mepacrine is taken, that shorts are never worn, that shirts are put on and sleeves turned down before sunset, that minor abrasions are treated before, not after they got septic, that bodily cleanliness is enforced". He ensured malaria discipline by "surprise checks of whole units, every man being examined. If the overall result was less than ninety-five per cent positive (for mepacrine) I sacked the commanding officer. I only had to sack three; by then the rest had got my meaning" [27]. With such drastic measures, the daily sickness rate for the Fourteenth Army was reduced from over 12/1000 in 1943 to 1/1000 in 1945 and this with other steps turned defeat into victory for him in the Burma campaign.

CONCLUSION

Malaria is widely prevalent in the country, especially in the areas our troops are operating. Our main means of prevention currently is by use of the drug 'Daraclor' of 'Fansidar'. This must be consumed regularly and the responsibility for this and other measures of prevention by soldiers falls on regimental officers at all levels.

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CONCEPT OF LAW

— essay in jurisprudence

Kolonel Hj Wan Nordin B Hj Wan Mohammed

In his article the writer explains briefly, the importance of the work of Bentham and Austin (the two main proponents of the positivist theory of law) for legal theory and discusses their concept of law not as command but a concept of law as system or order which can be analysed in terms of its part and separated from other froms of social ordering social phenomena.

The command, or the imperative, theory of law is long associated with Bentam and Austin[2]. They contended that laws were commands of human being without any necessary connection between law and morals, or law as it is and law as it ought to be. They also contended that legal concepts were distinguishable from sociological enquiries into the relation of law and other social phenomena.

John Austin's theory regards law as the command of the State, enforced by sanction of physical force, that is, it assumes the existence of the State before law and that the validity of laws does not depend on other social phenomena such as religions or positive morality and other forms or bodies of rules.

Thus, although a command aims to do justice, such a command is still valid law, though it fails to do justice. In short, the Austinian theory of law is essentially "a general command of a sovereign addressed to his subject."

Bentham's positivist's theory is reflected in his general theory that laws are simply expressions of the will of the human lawgiver; such expressions are in the nature of commands, prohibitions or permissions to act or to forbear to act.

Thus, according to him, laws are but artefacts of the human will, there are not natural laws but indeed there are natural and rational principles for the guidance of the legislators and the criticism of law. As Austin put it, "The existence of law is one thing; its merits and demerits is another".

In Bentham's words, a sovereign is "any person or assemblage of persons to whose will a whole political economy and community are (no matter on what account) supposed to be in a disposition to pay obedience; and that in preference to the will of any other person."

An analysis of his definition of law reveals the various component parts of

the legal system quite separate from other forms of social ordering and social phenomena, while Austin's notions about law expand the theory of the master. Their theory, though based on 'commands' generally, is intra-systemic in that it works in a system, of which the concept of law as a command is but a part of that system, whether domestic or international.

By their definition, therefore, a system is either legal or not.

It is legal if it fulfills the notions of sovereign and sanctions, superior and inferiors and other artefacts in the pedigree of law.

On the same reasoning, an international system does not qualify as a legal system and the so-called international rules/laws are only rules of positive morality. They do not have 'sovereign' and 'sanction' as defined by them. There is no sovereign who can conceive or adopt signs declarative or impose sanctions (prospect of evil) in the event of misconduct.

Any system which fails these tests fails to qualify, since all forms of "law" must be ultimately referable to a common source of power (sovereign) or, as Austin put it, command.

For example, in a domestic legal system, the orders of a father to the son, orders by the judiciary, and orders made by the executive and so on are part of pyramid leading to the sovereign who adopts the mandate by susception or pre-adoption.

Sovereignty is also extended by the concept of power-holders. Austin deals mainly with the idea of 'conceived' - mandates conceived by the sovereign as the obvious monarchical orders personally.

In both respects, all mandates find their eventual support in the 'sovereign' of the system. Such do not exist in an international system. (There are other opposite, modern and better views on this which use other concepts in the legal theory to argue that the international system qualifies as a legal system e.g. Kelsen's theory of law of positivism [3]).

Before any rules can be regarded as positive law (and not merely positive morality) there must be a system, or a state, in which certain charataristics exist, before orders/commands can be expressed, and before the system can be termed as legal. There must first exist a society - an independently existing political society - without which no idea of sovereign can exist or operate.

Within that society there must exist the superior (the person (s) who actually does the commanding) and persons inferior who are under a duty to suffer an evil if commands are disregarded.

The sovereignty and sanction are correlative: the former is the determinable human superior who is not in the habit of obedience to a like superior, but he is the habit of being obeyed by the bulk of the members of the society; the latter is the physical harm or evil likely to befall on errant individuals whose conduct is in question.

Those are the parts of a positivist legal system as expounded by Bentham and Austin in their theory of law. The question of command does not seem to be part of the analysis, of to form part of a prerequisite of a legal system.

In any case, 'command' as defined, is too narrow to be comprehensive.

For example, until the discovery of Bentham's expanded theory on positivism, the command theory did not take account of permissive rules of law (that certain acts are not wrongful) or the rules of procedure.

Not "every law or rule is a command involving coercion", they concerned obligations as well (Hart).

On the other hand, even the concept of law as a system has flaws.

One can argue that for a State to exist, there must first be legal order (not merely a social order) because a State reflects an organization of power personifying a set of rules which members feel bound to follow ("Law as Fact" by Oliver-crona[4]) and even the sovereign (for example, the Agong, Senat and Dewan Rakyat) reach their position in accordance with rules.

In conclusion, as between the concept of law as a command and the concept of law as a system, it is the latter that bears some importance to Bentham and Austin's legal theory, as, command must exist in a system, and the system, as constituted in the theory, formalized the whole structure into a legal one consisting of laws property so called.

The concept of law as a system, however, stops short of a comprehensive explanation of a legal system that we know today or befitting all types of legal system existing generally, or at a point in time.

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(2) **Ibid.** Pages 78 - 89.

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(4) Olivercrona, Law and Fact, 1939, Chapter IV, Page 127.

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COMPUTER
Lessons Learnt From CODIMS

By

Lt Kol. Mohammad Khir B Abd Razak

To develop a computer system there are many activities which have to be carried out. One of the longest activities is the development of the software which makes the computer works the way the management wants it. The first computer to be installed in the Malaysia Armed Forces logistics environment is an the Central Ordnance Deport. The system application development for the Depat is known as Central Ordnance Depot Inventory Management System (CODIMS). This development project has taken 15 months to be completed and all the resources employed is from within the organisation. Some assistance from the vendor and through the Australian Defence Corporation Programmes was sought. There are lessons that have been learnt from this project and they are very useful for computer project develoment in the Armed Forces.

INTRODUCTION

Today's Armed Forces is faced with many difficult and complex challenges. The pressure on the logistics system to sustain the rise in expectation for more and better quality goods from the users, in face of rising costs, recurring shortages of qualified manpower, limited availability of capital and increasing government regulations, places a premium on the efficient utilization of available resources. An up-to-date logistics management is an important element in a modern defence force.

Inventory management is one of the essential elements in a modern logistics system. In our Armed Forces, the logistics system is in the process of computerising the inventory control function. This is part of the development of the Malaysian Armed Forces Automated Logistics System (MAFALS).

The development plan will take ten years until 1992. In the first phase of the development programme, the inventory control application is being developed for the three Services of the Armed Forces. The Army system has been installed at the Central Ordnance Depot (COD). The RMN system is planned for installation at the naval base in Lumut, and the RMAF system will be installed at their base in Sg Besi. Later on, the logistics application will be extended to cataloguing, maintenance, workshop production planning and control, and transportation.

This article will initially describe the Army inventory control which is code-named CODIMS for Central Ordnance Depot Inventory Management System. This will be followed by a discussion on the lessons learnt from the the development of this system. There are various aspects which are of interest to the management when planning for computerisation of an organisation. The experience gained from the development of CODIMS is useful for future computer system development in the Armed Forces.

INVENTORY MANAGEMENT THEORIES

Before CODIMS important features are discribed, it is necessary to mention a few concepts on inventory which are applied in the development of the system. The inventory in the COD is termed as secondary items which differ from the primary items such as vehicles, weapons and ammunitions that are managed at staff level. The COD inventory, on the other hand, can be controlled easily by the computer. Experts on logistics system will agree that inventory control of these items is a classical one. Hence, the computer at the COD can be modelled along the existing system found in most Armed Forces.

In fact, the characteristics of the COD inventory are empirical in many aspects. For that reason the widely adopted philosphy of selective management is incorporated in CODIMS. This is based on the categorization of the inventory into three categories derived from an analysis of the items usage and cost (Fig 1).[1]

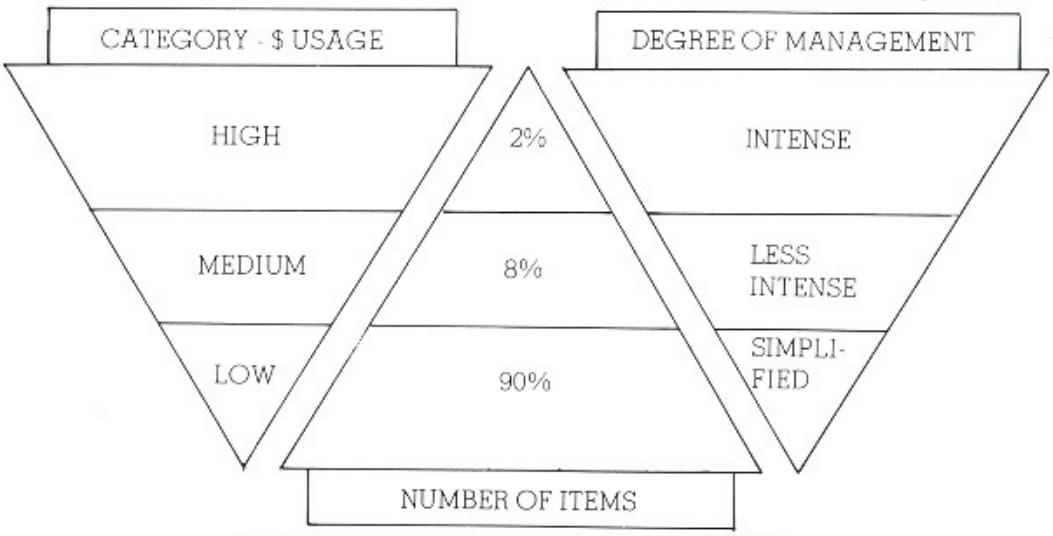

Fig. 1. SELECTIVE MANAGEMENT CONCEPT

INVENTORY POLICIES

The inventory policies are the most difficult part of inventory management. These include service level, replenishment policy and applications of models. One factor that contributes to this difficulty is the lack of management information that is required for the formulation of policies. In the Ordnance the main objective of inventory management is to provide the right stores, at the right quantity, at the right time and place. From this objective it is interpreted into how diverse must the range of stock by, how much is the volume of each item to be held in stock, what is the lead time for the supply pipe-line, what is are the levels of field depots that must be supported. Each of these elements must be spelt out in policy terms for the lower management to operate. But sometimes these policies need a management information system (MIS) to make them meaningful. For instance, data must be available to determine how long time must be and to what extent the risk of late or non delivery by contractors need to be protected. Likewise the demand patterns need to be analysed in order to determine the dues out on which safety stock need to be held. Research work can be carried out using the monte carlo simulation model to evaluate various stock control strategies. But in the absence of comprehensive information system most policies would have to be formulated from empirical basis. It is suggested here that more researchs are required in the future to establish accurate inventory policies.

FORECASTING

Having established the stock control procedure and the safety stock concept, the next important aspects of inventory control is to determine the right model to use in arriving at the forecast demands. the selection of the correct forcecasting system will enhance the quality of inventory management. It is also dependant on the nature of the operation of the inventory system.For instance it would be ideal to use the Moving Average method in a manual operation as in the case in our secondary depots. This Moving Average method is simple to apply but it would be quite inefficient and uneconomical in a computerized system. This is because we need to store a string of past data which in our case would be 24 monthly demands to perform a forecast. It is certainly a waste of computer storage space if other alternative methods could be used without having to calculate the forecast on a series of historical data. Here we refer to the exponential smoothing models which can perform the forecast losing the accuracy of the Moving Average[2] . In fact they are very powerful forecasting tools which could be developed to suit the underlying demand patterns. In order to fully appreciate the superiority of the exponential smoothing models it is first necessary to establish the patterns of demand. There are demands which could be random, trend, seasonal, ramp, step or impulse in pattern but all these underlying patterns may not be apparent in the COD inventory. From research, it has been established that the most common demand patterns for the COD inventory are random and impulse. Once the underlying demand patterns have been established it is easier to choose the right exponential smoothing models for the COD system.

CODIMS IMPORTANT FEATURES

Against the back-drop of the inventory management theories and concepts, CODIMS was developed on the Burroughs B 1955 computer. The computer has a memory capacity of 1 megabytes,

storage capacity of 530 megabytes, and printing capability of the printer is 650 lines per minutes.

CODIMS has many features of an advanced inventory management system. The three inventory sub-systems that have been developed on CODIMS are the inventory control, forecasting, and financial control. The inventory management applications and their features are depicted in. Fig 2.

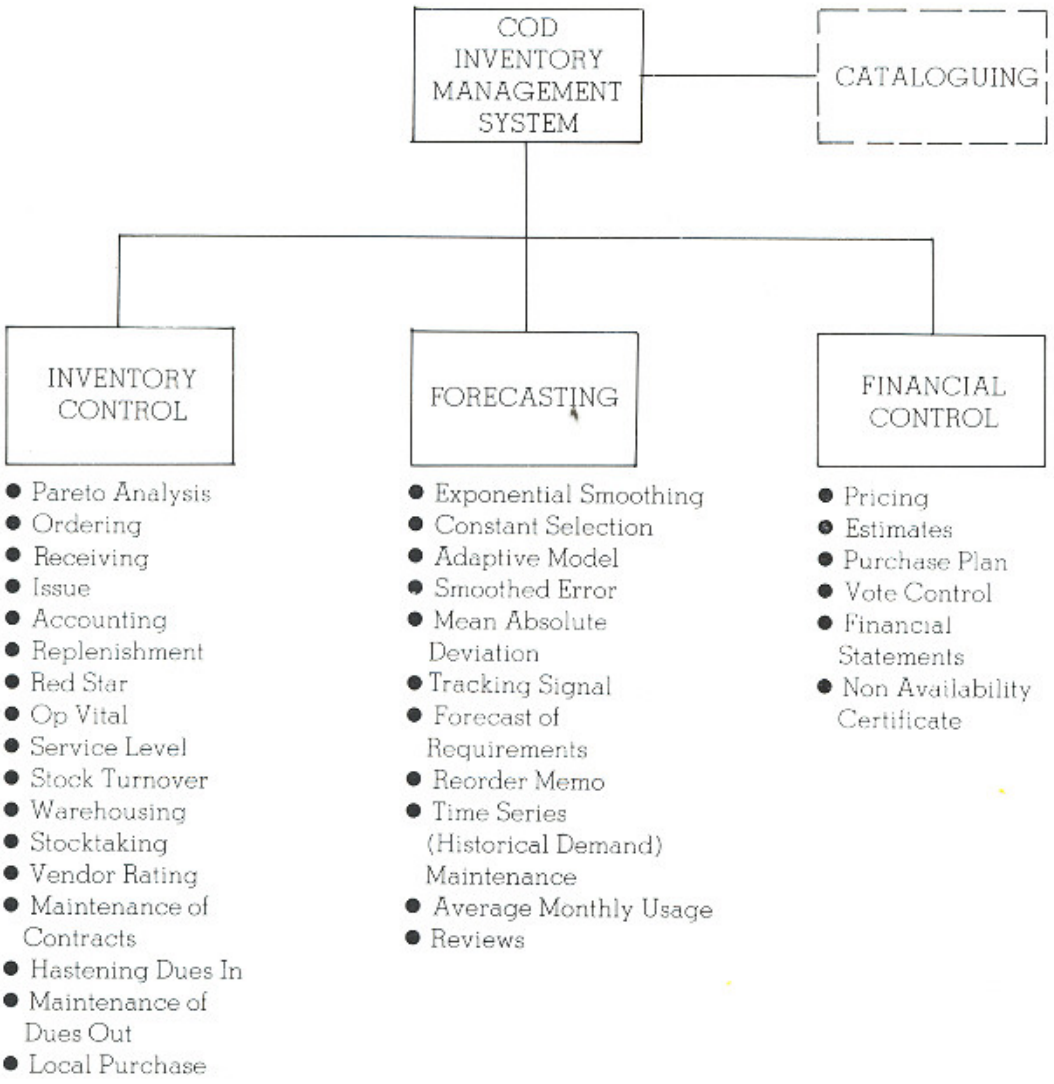

Fig 2 CODIMS IMPORTANT FEATURES

The inventory control system provides a powerful tools for planning the inventory control strategies such as management by exception as opposed to time consuming stock control practices. All the transactions processed by CODIMS are in real time. This gives very fast response time to demands received from the customers. This also means that enquiries on stock status could be done in real time, thus providing fast retrieval of data for decision on priority issues.

The forecasting sub-system is another advance feature of CODIMS comparible to any advance forecasting application for inventory control in the country. This is achieved from the adaptive forecasting technique which a adopted after an entensive research. The research on the forecasting application for CODIMS has been based on up-to-date journals found in the libraries of well known universities.

Another sub-system which provides an advance feature for any stores organisations in the public sector is the financial control. This sub-system enables the Depot to estimate correctly the funds required for a financial year. Having obtained whatever funds that the Treasury allocates, the Depot is provided by CODIMS a purchase plan for the year.

LESSONS LEARNT

CODIMS is the first major computer development project undertaken for logistic applications in the Malaysian Armed Forces. The EDP personnel involved in the development of CODIMS had no previous experience except for the conversion from accounting machines to the B 800 mini computer system. But this conversion did not give sufficient foundation for a project like CODIMS. Nevertheless, the project members have been trained in many disciplines such as system analysis, programming, inventory control, and business administration. Equipped with these qualifications they undertake the task of developing CODIMS. At the end of the development they have gained valueable skill and experience which place them as good asset to the EDP resources.

From the experience gained it is prudent to record some of the important lessons learnt so that future development could be improved. These are as follows:

- Project Milestone.
- Testing.
- Manpower control.
- Documentation.
- Interface with other modules.
- Vendor support.

PROJECT MILESTONE

Project milestone refer to the time schedule of the project. It was expected that CODIMS would take a lot of man-hours to develop. As always the top management wanted the system to be completed as quickly as possible but the project team could not justify how many man-hours were required. The opinion on Australia and British computer experts in their repective defence forces was sought. The claimed that in their case it had taken up to 500 man-years to develop their system. Faced with this kind of pressure and uncertainties, it was decided that the latest technology in developing software should be adopted. That was how the fourth generation language became associated with CODIMS.

While CODIMS was being developed using the B 1955 computer, a tender was invited to acquire similar system for two installation, that is for the Royal Malaysian Navy and the Royal Malaysian Air Force. The preparation for the tender specification took some time to finish. It was during the preparation of this tender that CODIMS started its development. Before the tender could be awarded, the development of CODIMS had already been completed. All this was possible because a fourth-generation program language called Logic and Information Network Compiler (LINC) as depicted in Fig 3, was used for the software development. However, LINC did not dispense with the necessary phase of computer development. To convert the inventory control problem to a computer solution is still time consuming and costly. This is because it will require to undergo the following stages:

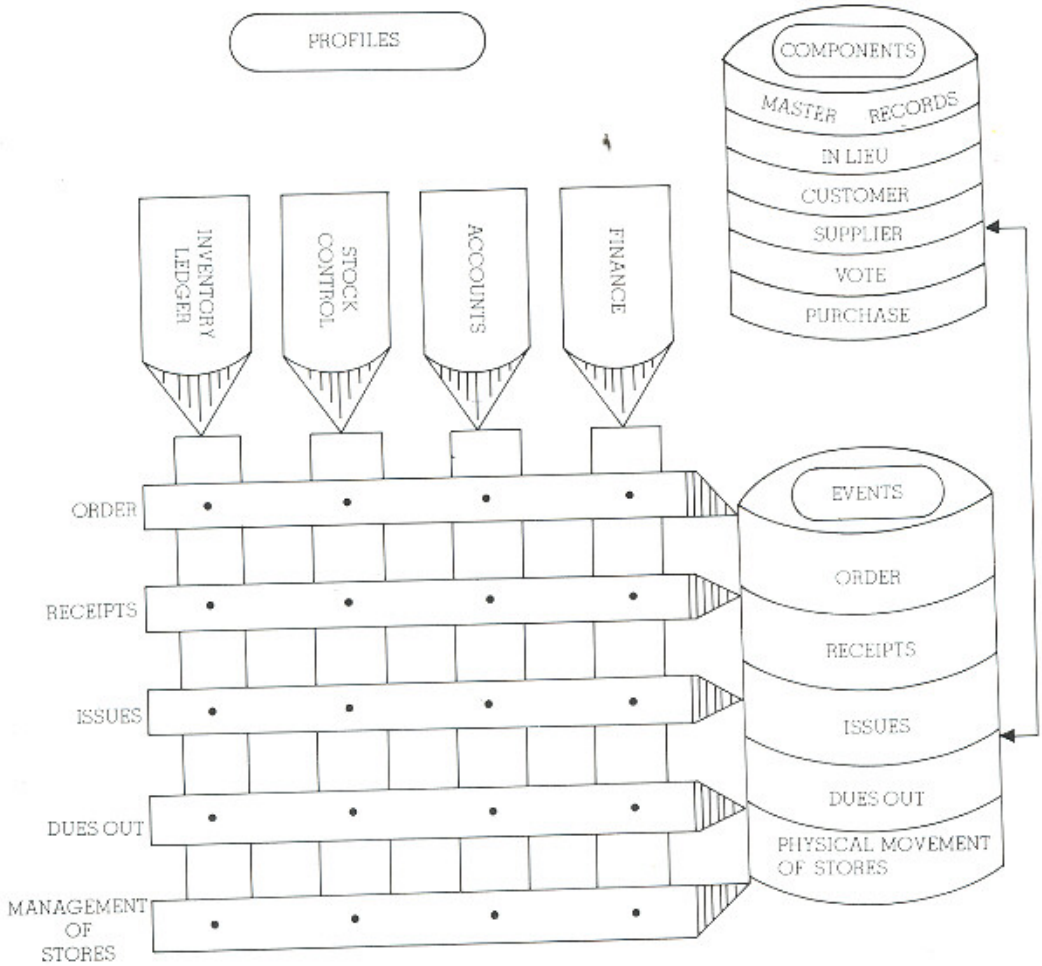

FIG 3. DEPICTION OF LINC IN INVENTORY MANAGEMENT APPLICATION

- Problem definition
- Exact solution definition designed in a computer system format
- System design
  - + Programming analysis
  - + Master file layouts
  - + Data base design
  - + Screen layouts
  - + Report layouts
- Program
  - + Transaction processing
  - + Program intercommunication
  - + Fine tuning with efficiency considerations
- Testing
  - + Programming test
  - + System test
  - + Volume test
  - + Parallel run
- Documentation
  - + System specification
  - + Program specification
  - + Operation manual
  - + Training manual
- Data Creation
  - + Master file data
  - + Transaction data
  - + Backlog reporting
- Hardware ecquisition
  - + Procurement process
  - + Delivery
- Site preparation
  - + Computer room
  - + Remote terminal locations
- Training
  - + Managers
  - + Users
  - + Operators

But LINC has definitely reduced the programming time considerably. It took 10 months to develop the database and the screens (Fig 4). The programs are about 10,000 lines of statements and when the COBOL program source is produced from the LINC compile, it consists of more than 30,000 lines long. This comparison of line statements already means a saving of programming time by a factor of three.

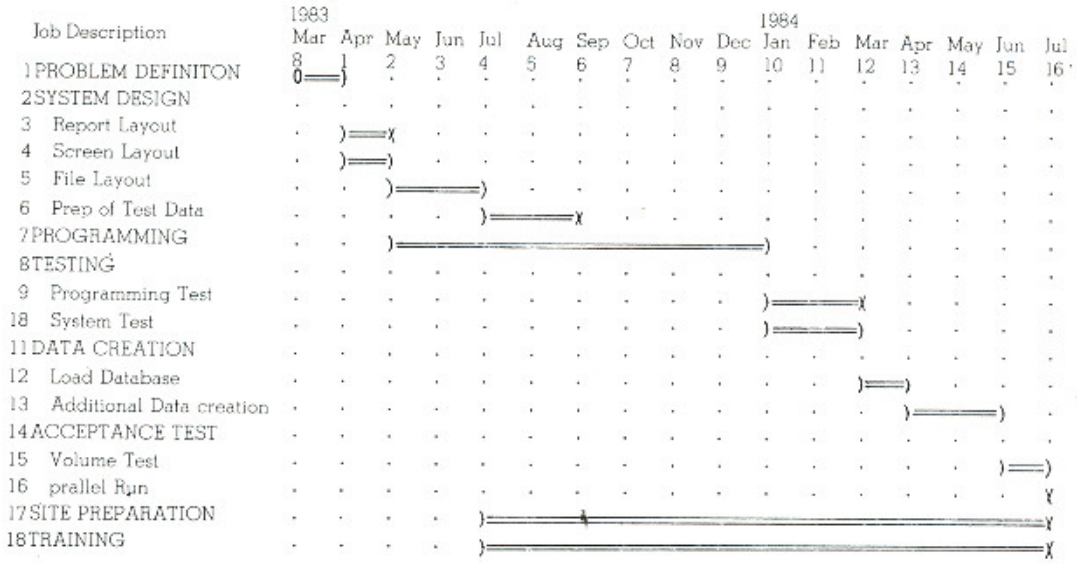

FIG 4. DURATION OF THE PROJECT DEVELOPMENT

Lesson Learnt. The Armed Forces could ill afford a development period of over two years. There is also a shortage of EDP personnel. One way of addressing these problems is to use an advance programming tool which provides time reduction capability. On Burroughs computer, this programming concept is available through LINC. CODIMS has gained time saving and high productivity development output. The development of MAFALS should consider the use of fourth-generations language which is available on most computers. CODIMS has proven that any skepticism on the performance of LINC is invalid.

TESTING

This is the activity that ensure user's complete acceptance of the system. With CODIMS, the development took that much longer due to a rigorous testing methodology. The testing phase of CODIMS alone took 6 months. Several tests were conducted; these include programming test, system test or prototype test, and volume test.

Lesson Learnt. A through testing procedure should be observed in order to ensure the production system is error free. It was learnt that every time there was a change in the programs the whole testing procedure had to be repeated. Nothing should be left to change. The effort spent in the repetitive tests is worth the effort as this will prevent unnecessary modifications and corrections at a later stage when the production system is already running. The organisation cannot afford to have disruption to the func-

tional flow once the production system is already online. Corrections to the programs at this stage will only aggravate the problems.

MANPOWER CONTROL

Computer personnel are scarce in the Armed Forces. The Situation is compounded by frequent change of assignments. It becomes necessary to train 4 computer personnel for every appointment in a computer installation or organisation. During CODIMS development which lasted for 15 months, there were 10 computer trained personnel assigned to the project. But out of this number, 4 personnel were taken away for courses. In addition, almost every personnel was given extra-mural tasks to perform.

Lesson Learnt. It was observed that those personnel who were sent away from the project could not catch up with the team after they came back from their absence. Moreover, they needed time to reorientate to the system. This means precious time had been lost. The implementation of CODIMS could have been achieved much faster had the computer personnel not been disturbed.

DOCUMENTATION

The development of application system in the Armed Forces is a relatively new discipline which will take time to mature. The few systems that have been installed so far do not appear to have good documentations. Therefore, it could not be over-emphasised that CODIMS must have proper documentation. Moreover, CODIMS is only part of the overall plan to computerise the Armed Forces logistics systems. Conscious of this situation, the following documents have been produced:

— Master Plan

— Functional Requirements

— System Specificat ons

— Operations Manual

— Management Guides

— Training Manual

Lesson Learnt. By using LINC, the system specification could be tailored to LINC specifiations. Database structure should not bother the system analysts so much as this will be taken care of the LINC itself. In this way, more time could be spent in specifying the screen layouts, report layouts, and entity relationships. With this simple designing concept, the system could be specified by the managers themselves which given the advantage of users commitment to the development of the system. This sense of commitment goes a long way towards eliminating any tendency of resistance to change to the system.

HARDWARE

The B 1955 machine is configured with fixed disc of 400 megabytes capacity. This is planned to be increased to 1200 megabytes to allows for an interlace with cataloguing application. The 400 megabytes storage capacity is to hold 100,000 records of inventory master with 150,000 transaction records a year. The requirement is to store transaction records a year. The requirement is to store transaction records for two years on the disc to allow for on-line inquiry. Each inventory master record consists of about 45 data elements. The hardware is also made up of removeable disc capable of storing 130 megabytes of data. This is being used to store the backup database. Another back is held on tapes which are run by tape streamer. The Central Processing Unit (CPU) has a memory of 1

megabytes. All This is found to be sufficient for the time being. But once the cataloguing sub-system is included in the CODIMS, the machine has to be upgraded.

Lesson Learnt. During the planning it is necessary to cater for a reserve of the storage capacity. At least a reserve of 50% should be made. In the case of CODIMS, the reserve was for 800 megabytes of fixed disc. This is to cater for the requirement of cataloguing application.

INTERFACE

CODIMS is just the first phase of the development of an integrated logistics systems in the form of MAFALS. Hence, many more modules or sub-systems that have to be included in the future. The following modules have been planned for the next phase of development:

- Cataloguing as specified by MAFCA.
- Maintenance planning and control by the Central Workshop.
- Material Requirement and Planning for repair programmes
- Return Stores

Lesson Learnt. The development of a system like CODIMS which has to grow in order to cover the wider spectrum of the organisational needs, requires the efforts of all levels of the organisation. With full commitment at all levels, the growth could be fulfilled with full momenturm. It could be said that because CODIMS has generated an interest by all levels of the logistics organisation, its growth would have the mementum. Moreover, the modules mentioned obove have already been included in the master plan on which future development should be based.

VENDOR SUPPORT

It must be emphasised that a trouble-free system is very much dependant on the support given by the vendor on hardware as well as on software. In this case, a selection of the machine should be influenced by the reliability of the vendor support during and after the development stage.

Lesson Learnt. In the case of the COD, the depot has been using Burroughs machine for more than 20 years and a good rapport has been established between the Depot management and the vendor. This goodwill has been used to good advantage by the management to get the best attention by the vendor. So far, this support has been responded to by the vendor.

CONCLUSIONS

The development of CODIMS has brought about a new approach in the development of a computerised system in the Malaysian Armed Forces. Firstly, it demonstrates that a project such as CODIMS could be completed in less than two years if development reduction effort is employed. LINC has provided that reduction capability. Secondly, the project cost has been reduced tremendously due to the employment of in-house computer personnel who have proven their credibility. In fact, no cost has been incurred in the software development except for the on-going salaries of the computer personnel in the Ordnance Corps. Thirdly, the inventory management in the

COD has been modernized to incorporate up-to-date techniques such as selective management and forecasting. These techniques, while simplifying the operation, will produce better results.

The lessons learnt form the development of CODIMS impinge on project milestone, testing, manpower control, documentation, interfacing with other modules, and vendor support. Future application system development in the Armed Forces should consider these lessons during the planning stage.

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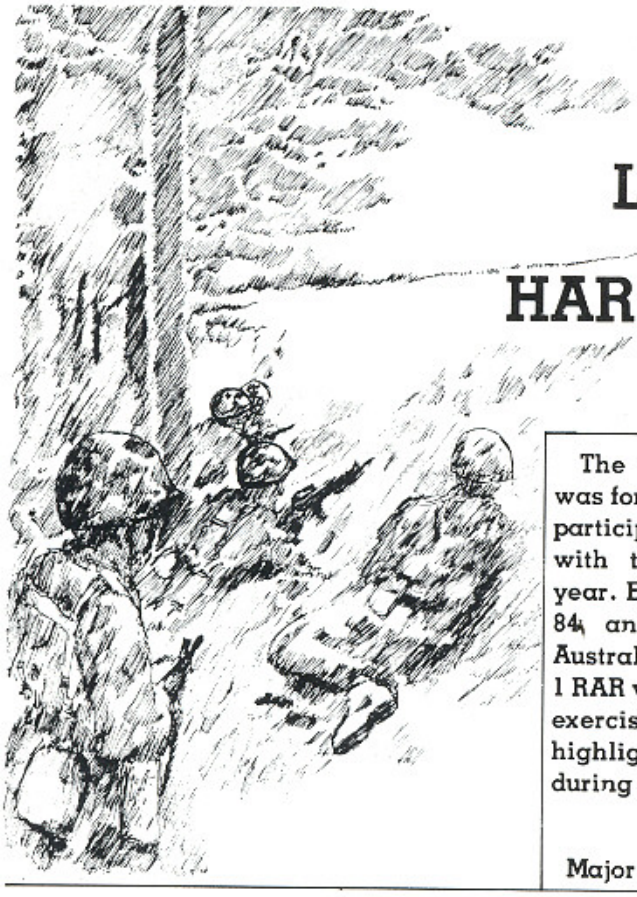
"The greatest advantage available to any defender is the opportunity to acquire an intimate knowledge of the terrain. Such knowledge is as essential for the combat support and combat service support units as it is for the infantry."

– Lt Col. D. E. S. Merritt, US Army



LATIHAN HARINGAROO 9

The 9 Malaysian Ranger Regiment was fortunate to be given the chance of participating in a bilateral exercise with the Australians sometime this year. Ex Haringaroo 9 began on 10 Oct 84 and lasted for ten days. An Australian rifle company belonging to 1 RAR was selected to participate in the exercise. This article attempts to highlight some of the lessons learnt during the exercise.

Major Fathol Zaman Bin Bukhari

INTRODUCTION

What could have been a bleak year was miraculously adverted through the infusion of new blood. A new crop of officers and NCOS had been posted in with new ideas and a more positive outlook, thus the battalion was on its right track. Batu Uban Camp at Gelugor was rather cramped, the seawater played havoc after every downpour. Space was limited and playground was non existence. The occasional visit to the USM padang had somewhat strained the good relationship maintained so far with the authorities. The boys had to bear the frustration of living in high rise flats amidst dangers of slippery stairs and poor security.

Rumours of an impending transfer was abound either to Sabah or Sarawak-nobody could verify nor determine. When the news finally reached us we were surprised that the news was not that bad. Kangar was to be our new home. Perlis the home state of our Colonel-in-Chief backoned us and we were proud to be the first Ranger battalion to serve there. The move up north was completed within two weeks although the families had still to struggle alone until April 1983 when married quarters at Arau were finally completed.

Oran camp located 6 miles to the north east of Kangar is very much different form Batu Uban Camp. It is astride the road leading to Chuping Sugar Plantation and is also close to a cement factory.

The Camp was designed and constructed by PANELEX Sdn Bhd and like all new camps had its woes and problems. These shortcomings had no consequence to the utmost matter in mind. Training was lacking due to time and land constraints when in Penang. Prospect for a generous training period was in the offing. A battalion test exercise within the Gonzales series and the much feared march were lined up for us for the year 1983. We took these in our stride and set about preparing the whole battalion for the coming exercise. The beginning was indeed torturous, the idle body when forced to take punishment would complain and react negatively but with time and patience been the virtues all these sufferings were soon subdued and we all emerged victors albeit the vanquished few.

During one of the Gonzales Ex the battalion was tested on two aspects, defence and attack. The exercise was conducted at Bukit Selambau near Gurun and lasted for a week. After a short stint at the border, the battalion was again gearing for another Gonzales. At long last Ex Gonzales 18 was made a reality, the long trek from Pos Poi to Suvla Lines a distance of about 65 miles along treacherous mountain path and fast flowing creeks within the Main Range was completed in 6 days, a record time for the statistician. When 1983 came to an end we were resting on our laurels lauding our achievements which were by no means easy. We had emerged as Champoins in at least 7 contested games in the brigade and some of the better know athletes has represented Perlis and the Armed Forces at the national meets. However the glamour that we treasured most was our achievement in Ex Gonzales 18 for which we had overcome all odds and that an arduous task had been accomplised without much fuss and trepidation.

TRAINING POLICY

A new training policy was instituted by Training Division, Mindef. Battalion shall no longer be on a 12 month training cycle, a new training cycle lasting for 16 months was introduced in 1984. This system is aimed at procuring the best from all infantry units. The 16 month cycle offers a systematic approach to training which will culminate in a battalion test exercise either with or without foreign troops. In short this training cycle balances training requirement and operational committments thus offering battalions with a more civilised training system.

The year 1984 augered well for us, a 16 month cycle ample time was set aside for training. After a two month tour at Kroh, the battalion returned and prepared herself for training. We were told that the year's test exercise would be the Haringaroo series. *Exercise Haringaroo* (a mixture of the word Harimau and Kangaroo) is a combined exercise with the Australians. In each exercise, a Malaysian infantry battalion will take under its wings a rifle company from the Royal Australian Regiment to form a fifth company and undergoes a test exercise in a conventional war setting.

The closest the battalion had come with an exercise of this nature was Ex Haringaroo 7 in September 1983 when a company was detached to HQ 6 Bde to act as enemy for the exercising battalion, the 4 Royal Malay. Some officers were also tasked as umpires. These provided us the opportunity to view the exercise at close quarters and gave valuable lessons as to the conduct and it too exposed the common mistakes committed by our troops. It is imperative that the units participating in such combined exercises must show their best in the presence of foreigners.

An otherwise cordial and mundane exercise may turn sour if a negative posture is being adopted by participating troops. Not to fall into this trap and predicament we had sworn to produce the best when the situation demanded. We had set our minds to achieving and enviable standard and all that matter then was perserverance and dedication on all parts - officers and men alike.

TRAINING

The new training cycle incorporated a period of 4 months where intensive training is enforced and observed. Our prime training period began on 10 Jul 84 and lasted till 31 Oct 84. The battalion training syllabus was revamped and all training was geared towards achieving the objectives of Ex Haringaroo 9. Main aspects of the training were confined to individual and collective training and the subjects on *Advance, Defence* and *Attack* were given greater emphasis over drill and barrack duties.

We have always maintained the belief that "there are not bad soldiers but bad officers". The officers are the ones that need special care and guidance. Training of officers and senior NCOs was given top billing. To achieve an admirable standard, classes in the form of study periods were introduced. For the start officer's skill in communication and teaching was brushed up. The messes formed venues where forums for officers were held. Debate and syndicate presentation on current topical subjects were encouraged, allowing officers and senior NCOs an opportunity to speak their mind either individually or in groups. This was just the beginning, with encouragement and exposure some of the more reserved ones were no longer shy and reticent.

As the CATS (Communication and Teaching Skill) series ended, subjects on Military history were introduced. Officers and SNCOs were divided into syndicates to present selected military topics. Altogether we had some four presentations by various syndicates. Time was indeed a factor, research and reading were limited due to the absence of reference materials. Notwithstanding these a few syndicates had thrived through the effort of a few.

The final part of the officers' training was confined to the teachings of *Tactics* especially *Conventional Warfare*. Since only three phases of war would be tested during Ex Haringaroo 9, the subjects on advance, defence and attack were taught. Teaching came in the form of discussion followed by a TEWT (Tactical Exercise Without Troops) and finally a tactical exercise with troops in the field. Discussion and exercises were conducted at company and battalion levels. Besides preparing the officers and SNCOs for the eventual exercise, the training also provided the young officers an opportunity to brush up their tactical knowledge before they sat for their practical promotion examination.

In so far as the battalion was concerned, the boys were taught the fundementals of fieldcraft, basic tactics and map reading. They were also exposed to conventional warfare by their company officres who had the luxury of an extra coaching during the study periods. Demonstrations on field defences and defence system were given including battle drills at platoon and company levels. These demonstrations were being sponsored by the rifle companies. Physical training was also upgraded, route marches and running were intensified and in the evening unarmed combat (TTS) was taught on the parade square. Spiritual training was also given due attention. All

religious bodies were invited to propogate their teachings.

In the field of sports, inter company games were arranged by the respective sports officers. These extra mural activities did much good to the soldiers as they provided them with a mean to vent their frustrations due to prolonged confinement in the camp. Inter unit games were also contested and we emerged champion in three of the four games contended. Additional training for the officers included lectures by prominent civilians from the private sectors like MADA, the local cement factory and also legal matters from the State Legal Advisor. These lectures were held after dinner in the officers, mess.

At the end of September and early October a battalion level exercise was arranged to determine our skill in advance, defence and attack . Advance and attack were done more than twice each to gain perfection. Although ground condition was not too favourable we had to make good use of what was available. To denote armoured support we converted two Land Rovers into makeshift APCS using PVC pipes as a model guns. This, to an extent indicated our determination to improvise and instill realism.

PRE EXERCISE HARINGAROO

The rifle company from 1 RAR was warned of the impending exercise whilst in base at Coral Lines, Lavarack Barracks, Townsille, Australia in May 1984, D Company 1 RAR was commanded by Major Graham Long a graduate of OCS, Portsea, Australia. It had been the policy of the Australian Government to maintain an infantry company at the RAAF airbase at Butterworth. Since D Company 1 RAR was earmarked for the 4 month tour of duty at Butterworth the company was given the honour to exercise with us. Major Graham Long a gregarious man in his early thirties had taken steps to prepare his company for the joint exercise.

The company was airlifted to Butterworth airbase in batches by mid August 1984. By 28 August 1984, the whole com-

Briefing for officers & NCOs 1 RAR

pany had settled in at Butterworth relieving another company from 3 RAR. It was a sheer relief for most of his men to be able to see a good part of Asia. The soldiers mostly in their early twenties were eager to be in Malaysia particularly to be at a place close to Penang of which they were rather familiar with. Some of the NCOs had been here before serving with the other companies from other battalions but for the majority this was their first trip to the Far East.

With good access to the training facilities at PULADA, Major Graham Long took the opportunity to spruce up his company. Platoon by platoon was sent down to PULADA for a two week training in conventional war tactics. Besides the physical requirement the outing too provided the men with a rare chance to shop in Singapore. At anyone time two platoons could be out on training. The Officer Commanding, Major Graham Long had made good use of the time given to prepare his company. He had with him an able assistant in the shape of an affable young officer by the name of Lt Chuck Reynolds who was tasked to be the company training officer. Lt Chuck Reynolds, a gunner by profession was attached to the company as the For ward Observation Officer (FOO), an integral part of any Autralian rifle company serving on independant mission.

Head quarters 12 Brigade was taked to organize and conduct the exercise. This was the first bilateral exercise for the head quarters and as such it did cause a certain measure of apprehension on the staff. Major Ahmad Shazali bin Hj Ghazali the Staff Officer Operations prepared the ground works and also the papers required for the exercise. Since exercise grounds were limited the state owned land near Padang Lembu, Gurun was again selected for usage. How often this piece of land has been used for military manoeuvres is anyone's guess but to the best of my knowledge since 1983 some 20 field exercises have been conducted in the same area. Each time the ground tends to be smaller as larger tract of the land is being developed. FELDA (Federal Land Development Authority) with the assistance of Harrision and Crossfield is replanting the area with rubber and by next year more grounds will be used for settlement.

The first coordinating conference on Ex Haringaroo 9 was held at HQ 12 Bde on 11 Aug 84 and it was attended by all representatives of units who would be involved either directly or indirectly in the exercise. We were told that a cavalry squadron, a battery commander's party and a troop of engineers would be supporting the battalion during the exercise. This was indeed a mammoth force considering the amount of armoured vehicles and engineering resources that would be with us. However this initial package was soon to dwindle in size when the cavalry squardron was trimmed down to a troop and the engineers was slashed to a section strong - more managable size we had imagined than the previous. The Chairman, Lt Col Johan Chin, the Chief of staff of the brigade headquarters had stressed on the objectives and aims of Ex Haringaroo 9. The objectives, he said were:

a. Rapid deployment of a battalion group from peace time location to a given area of operation.

b. Practise the battalion group in the activities of advance, defence and attack.

c. Practise the proficiency in the various functions of command and control of a battalion

group in battle.

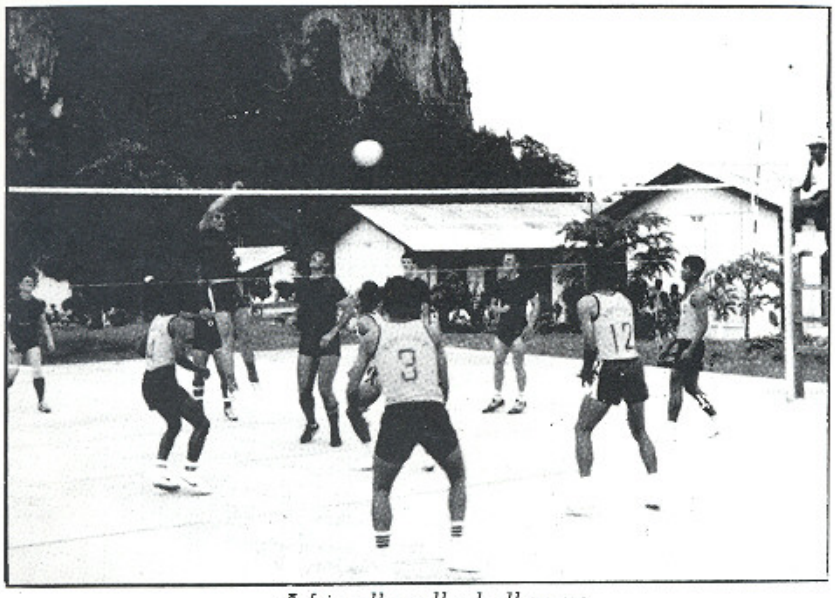
d. Practise troops in all arm cooperation.

e. Enhance cooperation and understanding between the Malaysian infantry battalion and the Australian infantry company.

The exercise according to the Chief of Staff was to undergo 3 different stages, the first stage being the marrying up of troop particularly D Coy 1 RAR and 9 Rangers, secondly the exercise proper and finally regrouping and debrief. All these stages would proceed from 10 to 20 October 1984. Another conference was called for on 28 August 1984 and it was the first time we set eyes on a representative from D Coy 1 RAR, Capt Paul Bosza the company's Second-In-Command had attended the conference on behalf of his company. We then set about to tie all loose ends regarding logistics and training requirements between us and the Australian company. There was nothing different in their operational procedures as both sides practised similiar training procedures. Whatever differences were only in the manner of application based on environmental conditions. There was nothing much they required from us except for some defence stores and timbers for their foxholes. There was ample supply of these materials and we just too glad to share. When the final conference was concluded on 25 September 1984 all troops involved in the exercise were prepared to show their best.

EXERCISE HARINGAROO

Marrying up involved an interaction period of three days beginning on 10 October 1984. The interaction was mainly aimed at getting together all troops involved in the exercise at a common ground to cross train and compare procedures. Since accommodation was limited at Oran Camp, we had invited only officers and NCOs of D Coy 1 RAR including officers of participating Malay-



A friendly volleyball game

sian units for a brief on 10 October 1984 in the campsite. It was indeed a joyous occassion for Major Graham Long and his officers. After a short brief on the battalion history and activities, the officers and NCOs were treated to lunch at the respective messes and club. Before they left for Butterworth we had a game of volleyball. This short stint in the camp broke all existing barriers between officers and NCOs of both sides. We had come to accept them as friends and also a part the battalion.

The first stage of Ex Haringaroo 9 was well underway. On 12 October 1984 all participating troops congregated at the Concentration Area near Kg Padang Pusing Whatt some 9 miles north of Padang Lembu. The first requirement of the exercise was given by Ex Control Headquarters at 1100 hour. We were ordered to advance up to Jeniang and take up defensive position across the town to stop the advance of the imaginary Lanuns from 905 Regt. 9 Rangers was to be 12 Bde's advance guard. The brigade's order of battle included 9 RMR and 305 Inf Bn (TA) supported by a C Sqn 3 Cav, C Bty 21 Arty and 8 Engrs Sqn. The advance was not going to be easy as the surrounding area was infested with PENGKOMS (Pengganas Komunis). At 0700 hour 13 October 1984, the battalion crossed the Start Point at the forward edge of the Concentration Area, up front was B Company acting as the battalion's advance guard.

Along the way the battalion had three major skirmishes with the PENGKOMS and we gave them a bloody nose. We had to mount a section attack, a platoon attack and finally a company attack into a platoon size PENGKOM position. The advance guard was changed once there was no major hitch to further delay the advance. The battalion was halted at around 1700 hour when intructions were given to the Commanding Officer, Lt Kol Abd Ghani bin Othman requiring him to take up an alternative defensive position near Kg Paya Mengkuang close to Padang Lembu. When his 'R Group' reconnoitered the new position, his Second-In-Command led the rest of the battalion into a harbour area short of the intended defensive position.

The battalion group had to occupy the defensive position by 1800 hour 14 October 1984 and the position must be defended by 0600 hour 16 October 1984. Due to the proximity of the harbour area to the defensive position, we managed to occupy the position by 1500 hour on 14 October 1984 thus giving us allowance for digging and other defensive priorities. A mobile screen was sent forward of the position. Infantry and artillery observation posts were established at strategic points. Patrols and listening posts were manned well forward of the defended area. Depth to a certain extent had been achieved when defence works were in progress. Ground condition was most conducive, digging was never a problem, all foxholes were completed to stage 3 by morning 16 October 1984. Timber was in adequate supply for the construction of Overhead Cover (OHC). Defence stores were lacking but to make up for numbers white tapes were used instead to indicate mines and wire obstacles. Engineers and assault pioneers resources were utilized amply for field defence construction. The men were equally tasked for patrolling, digging, weapon cleaning and also resting to maintain a vigorous defence routine.

PENGKOMS activities intensified each day but due to the strict orders issued by the Commanding Officer regarding engagement especially at night all these

On location

activities worn off because they were not drawing any attention from us. Non usage of lighting equiptment at night had again foiled the PENGKOMS attempts to locate us. Probing actions by the enemy were thwarted and I must credit the boys for such obedience. A good lesson we learnt here was that good leadership bred good fellowship. All it needed was encouragement from the top and adherance would follow suit.

Rehearsals on the battalion counter attack plan were conducted on a number of occassions. We had practised D Company who in was in the reserve to counter attack on B Company's position which was forward of the battalion's Ground of Tactical Importance (GTI). The rehearsals also required cavalry support as such the cavarly troops were practised thoroughly. Besides these rehearsals they were also included in the battalion's anti-armour plan. Rapid and correct deployment of the AFVs and assault troopers in their APCs can enhance any battalion in a defensive posture when under attack. The absence of night observation devices had curtailed the effectivebess of the obserbation posts. With the introduction of the modern technology in the weapon system modern armies can fight better at night. The British during the Falk lands war had taken pain to polish their night fighting capabilities and had gained many success during night operations against the Argentinians. To offset this imbalance, all observation posts were transformed into listening posts at night. When enemy activities are minimal and inteligence is not forthcoming it is best to control No Man's Land through effective patrolling. Patrolling at this instance may be confined to standing patrols and security patrols.

Another valuable lesson we learned fron the Australians was how to sustain active patrol forward of the defensive position. They had advocated the idea of sectorizing the forward areas into company and battalion areas of responsibilty. Ground within 2 kilometers or less surrounding the battalion defensive position comes under the control of individual companies. Companies are responsible to maintain control of this ground by sen-

ding their own security patrols by day and night. Areas beyond this limit stretching to possibly 10 kilometers belong to the battalion. This is a collective responsibility and the Patrol Master who is normally the Operations Officer will programme all patrols. It is wise to maintain patrols in this forward reaches by day and night. The type of patrols may well depend on the situation. If inteligence is required by formation head quarters then a Reconnaissance Patrol is sent, when enemy activities escalate they maybe a need to send Fighting Patrols. Fighting within the range of the guns is advisable but this is not obligatory. A combination of mobility and effective firepower is recommended. Infantry with cavalry is considered formidable enough to form such a force. Guns and mortars again can play a role by deploying forward from roving positions to harass and inflict casualties on the enemy.

The Australians too had advocated the nomination of an officer in the Battalion Command Post to assume the role of the Operation Officer and another as the Patrol Master. In our situation the Adjutant takes on both rules. In a battle situation the adjutant may not be able to cope up effectively. In the Australian Army, a major normally as the Support Company Commander will assume the appointment of the Operation Officer and he will plan all operational requirements for the Commanding Officer.

It is interesting to note how the Australians construct their command post. When we have always prefered to remain in a position to watch the front, they have opted to remain obscure but in constant touch with the troops through the radio set. As such they have refrained from constructing solid looking command posts on top of hill features with all the jagged edges exposed or silhouetted against the sky. Such construction according to them is not only vulnerable to enemy anti-tank guns but is also exposed to enemy artillery. They have recommended that command post be sited on the reverse slope and the overhead protection or cover must be level with the ground. It may be a little uncomfortable but it is a sure way to remain alive. In defence enemy observation is undeniable but for them to locate such a command post is indeed difficult. This is one good

Coy Command Post

lesson we ought to adopt.

One school of thought advacotes a system of defence where all trenches within the defensive position face the front. In other words you will have a company in defensive position with all platoons facing the direction of the enemy. This linear defence system is practised by us Forces. The system is not totally fallible but as the name suggests it requires a big force possibily a division defending along a line where all possible entry routes are being plugged. The need for all round protection and mutual support is a basic requirement. Companies while on defence must still adopt the age old system of all round defence within an alloted sector. In an environment like Malaysia stretching a brigade laterally may not be the answer. Positioning brigades or battalions at strategic points along possible entry routes is more praticable.

Another method of disabling the enemy on probing mission is to maximize ambushes. Ambush parties must be considered and coordinated centrally by the Patrol Master. Enemy activities during night time will definetly increase giving soldiers little time for rese. It has been a practise with certain units to open fire when fired upon. This is again a foolhardy action which will not only undermine ammunition conservation but will affect one's security too. Enemy probing parties will take the opportunity to determine weak and strong points within the defence sector. It is always wise to lay in wait and destroy the enemy when he comes near the defensive network.

The selection of Close Defensive Fire Tasks (DF Tasks) must never be made the perogative of the Commanding Officer only. Companies must be allowed to pick their own targets and then for warding them to Battalion Head quarters for final selection by the Commanding Officer. All Close DF Task are selected based on tactical significance. As for DF Tasks in Depth the Commanding Officer will determine in accordance to his defensive plan. Remember a battery of gun can provide anything up to 10 DF targets but only one FPF (Final Protective Fire). The battalion mortars may augment or compliment artillery tasks. All Close DF targets must be registered by fire to ensure accuracy. Identifying of Close DF targets by commanders is imperative and the Commanding Officer must make a point to enforce this.

Anti armour plan must also be considered in detail, beside detaching anti tank guns to likely tank threat areas it is also wise to send tank killer team out when tank threat is imminent. Although the 84mm Carl Gustav available is heavy and cumbersome its benefits must be reaped. Tank killer team works in pairs and should move with infantry protection from selected bounds. The team should be able to move from bound to bound engaging tanks before they can threaten the battalion's position.

The role of the 'A' Echelon has always gained much attention during exercises. We have seen many Gonzales exercises and other bilateral exercises where the position of 'A' Echelon has been questioned. The primary aim for 'A' Echelon is to support the troops in the front line. The question whether it is exposed to enemy artillery and sneak attacks to my mind does not arise. In the Malaysian context 'A' Echelon persists along with 'F' Echelon, their very existence is complimentary. There should not be a yardstick to measure distance and cover as long as they can provide all the facilities required to maintain the men in the field Distances and cover do not matter.

These were some of the valuable lessons that we had gleaned from the Australians. During the course of the exercise especially on and 17 and 18 October 1984 when an expected full period was imposed by Control Headquarters to facilitate visits by ROTU cadets and outstation officers, we had taken the opportunity to visit the Australian positions and get a first hand account from Major Graham Long and his platoon commanders. Strangely enough in the assence of the Company Second-In-Command, the Company Sergeant Major (CSM) deputizes as the company commander. The CSM is trained in company tactics and can thus command the company when the OC is away. Platoon commanders are strictly left to command their platoons and will never officiate as company commanders.

much casualties on our side, the enemy however retreated leaving behind there bodies. A rough sketch of a Lanun company position was found on one of the bodies. After close inspection it was found that the position belonged to the forward elements of 905 Regt and was located some five map squares to the south east of our position. By noon 17 October 1984 we received orders from 12 Bde HQ to destroy the enemy position. Intelligence was rather sketchy and a thorough recce of the location was needed. A close reconnaisance patrol was despatched. The patrol of five men under Lt Andy Mc Farlane returned with ample evidence of the enemy's position. A more accurate diagram was obtained from the patrol leader.

The whole morning of 18 October 1984

One For The Album

By the morning of 17 October 1984, Lanuns had mounted a company attack into one of the forward company positions. Their attack was repelled without

was taken by the battalion 'R' group to recconnaitre the enemy position. During the Orders Group, the Commanding Officer emphasized the battalion's mission

of destroying the Lanuns at hill feature 'ELEPHANT GRASS' to his subordinates. The attack was to be conducted in two phases with two companies taking on the first objective and another two companies taking on the second and third objectives respectively. It was to be dawn attack with fire support provided by artillery, mortars and cavalry. The H-hour was set at 0700 hour 19 October 1984. The battalion would move to the Forward Assembly Area by vehicles and would then move to the Forming Up Place (FUP) on foot. We started out ot 2300 hour 18 October 1984 and reached the FUP at 0600 hour 19 October 1984 all ready for battle. At 0650 hour the guns opened fire and ten minutes later the cavalry picked on the targets with their machine guns.

The assaulting companies crossed the Line of Departure (LD) at 0700 hour 19 October 1984 and closed up with the enemy. The approach march to the objective was covered with dense vegetation, a mixture of elephant grass and bushes with a thick patch of dirty rubber in between. Instead of adopting an open formation, the companies moved in single file when passing through the thick rubber patch and then reverted to open formation when fired upon by the enemy. The first objective under relentless fire from the assaulting troops and directed fire from the artillery and mortars was captured within 30 minutes. Trench to trench fighting was the order of the day, the boys had trained well in such combat and had shown their mettle in the face of strong enemy opposition. Although some men were lost when crossing the minefields and wire obstacles it did not stem the flow of troops towards the other objectives. The Australian company had moved far to the left, the Commanding Officer had directed them to the target area from a vantage point - the captured enemy command post. The second LD was fixed and K-hour was announced through the set. At 0745 hour D Coy 1 RAR and D Coy 9 Rangers crossed the second LD and thus commenced Phase 2 of the attack. By 0814 hour 19 October 1984 the nickname "Bloody Blokes" was issued by D Coy 1 RAR signalling the capture of objective C. The battle for the capture of enemy on hill feature "ELEPHANT GRASS" came to an end. Mopping up was done and a

The capture of hill feature ELEPHANT GRASS

search of the ground unveiled some enemy stragglers who were either despatched or captured. All in all we accounted for 45 Lanuns killed and 20 captured while our losses were 35 killed and one wounded. The enemy was in no shape to meet the might of 9 Rangers.

General Officer Commanding 2nd Malaysian Infantery Division and Commander 12 Malaysian Infantery Brigade with a retinue of army officers were present throughout the period of the attack. Ex Haringaroo 9 was officially terminated at 0915 hour 19 October 1984.

To end the exercise on a bright note, a cultural show was organised along the lines of a camp fire at Lembah Bujang in Merbok, a popular picnic sport at the foot of Gunong Jerai. The show was scheduled to start at 2000 hour but inclement weather foiled all attempts to get the show rolling. Although the condition was bad it did not dampen our spirits. We made good with what was available. In our dripping clothes which had been on our bodies for the last one week we entertained ourselves to a sumptous dinner of curry chicken and nasi berayani. Music was provided by the battallion musical group. The soldiers from both sides although facing communication difficulties broke ranks and joined hands in dancing to the beat of 'WALTZING MALTIDA' and 'RASA SAYANG'. Gifts were exchanged and there were the usual acolades and back slapping, everybody seemed to be happy and contended. The rain did not in anyway spoil the fun what mattered most was friendship and merriment. We had achieved all these within a span of ten days!

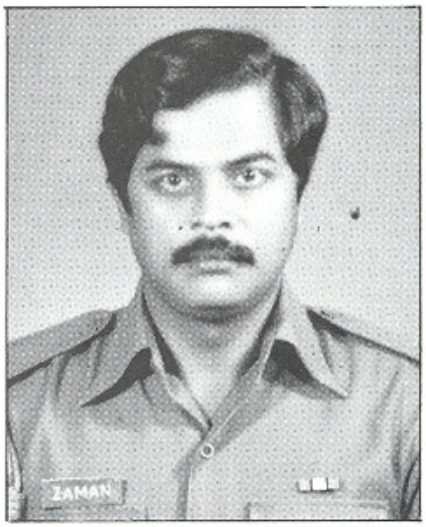
RETROSPECT

What have a gained when others have failed. A joint exercise like *Exercise Haringaroo* offers us many lessons. Foremost it allows two units of diverse back ground to operate in a common environment. The Vietnam war had spawn many techniques. Firepower alone does not win a war it may stem the spread of a determined enemy but it will not last in a protracted warfare. A battalion group may not in-

A momento to remember by

fluence a major battle but how the battle is fought within its locality is important. Understanding and good liaison with supporting units will enhance units interoperabality. Poor liaison kills initiative.

Some of our procedures and doctrines need to be changed and new ideas be infused. Although the basis of teaching often remains the same, its other aspects do change and we too must keep abreast with these changes. One glaring point which we tend to do is to maintain barrack room discipline even in battle. We insist that the soldiers be smartly attired and groomed while on exercises. Saluting and paying homage seem to be the norms. This may not be a wise thing to do, as snipers can easily distringuish their targets from afar. The soldiers must be prepared to do battle first rather than be smartly dressed. Fatique and tiredness overtake a person who has little rest especially when in defence. Prolonged inactivity too will curtail his vitality, a balance therefore must be struck between reality and foolhandiness.



Major Fathol Zaman bin Bukhari was a student of the Royal Military College at Sungai Besi. He was commissioned into the Rangers and had served with various Rangers battalions. His last appointment was a Second-In-Command of 9 Rangers. He is a graduate of the Armed Forces Staff College, Haigate and is currently attending a second staff course at SESKOAD Bandung, Indonesia.

"Fighting in builtup areas is a tactical dilemma which may prove to be the rule rather than the exception in future conflict."

Major Hans A Kratz
Kampftruppen. W. Germany

HEAVY AIR DROP *from* HERCULES C 130H

Mejar S. Sivam

A review of the present system of air drop and recommend suitable methods to be adopted, utilizing the Hercules C 130H aircraft.

INTRODUCTION

The Service Corps presently is established with four Divisional Air Despatch Companies and an *Air Despatch Platoon Special Service Group*. The primary roles of the Air Despatch Company are as follows:

* Receiving the preparation of combat supplies for air drop of air land.
* Provide despatching crews for air drop of combat supplies.
* Loading and lashing of stores in aircraft and unloading of aircraft.
* Maintain authorized stock of aerial delivery equipment inclusive of parachutes.
* Carry out trials on new or pro-proposed aerial delivery equipment.
* Assist the RMAF in search and rescue operation.
* Advise and assist units on preparation of stores for air portablity.
* In air maintenance operations to have an air despatch organisation at the take-off and destination airfield.

The present system of air dropping is limited to 'compact loads or harness packs, consisting of standard boxes, namely the A and B boxes. The compact loads weight between 200lbs to 500lbs each. The weight limitation has been governed by the fact that the current biggest cargo Parachute 32ft has a maximum limitation of 500lbs and the RMAF Caribou DHC 4 aircarft is not suitable for heavier loads for restrictions posed in manual air despatching.

After the emergency when Service Corps Air Despatch Coys took over from

the British 55 Air Despatch Coy RCT there has been no progress in the system of aerial delivery. This was because air drop of supplies was carried out to jungle dropping zones (DZ) in the CIW type of warfare. As such the requirement was for TAC T (SR) aircraft for air dropping of compact loads. Of late the imminent threat facing the country has necessitated the additional role of conventional warfare for the Army. If air maintenance is to be considered in conventional warfare the viability of the present system of air dropping of combat supplies will pose considerable limitations and has to be seriously reviewed.

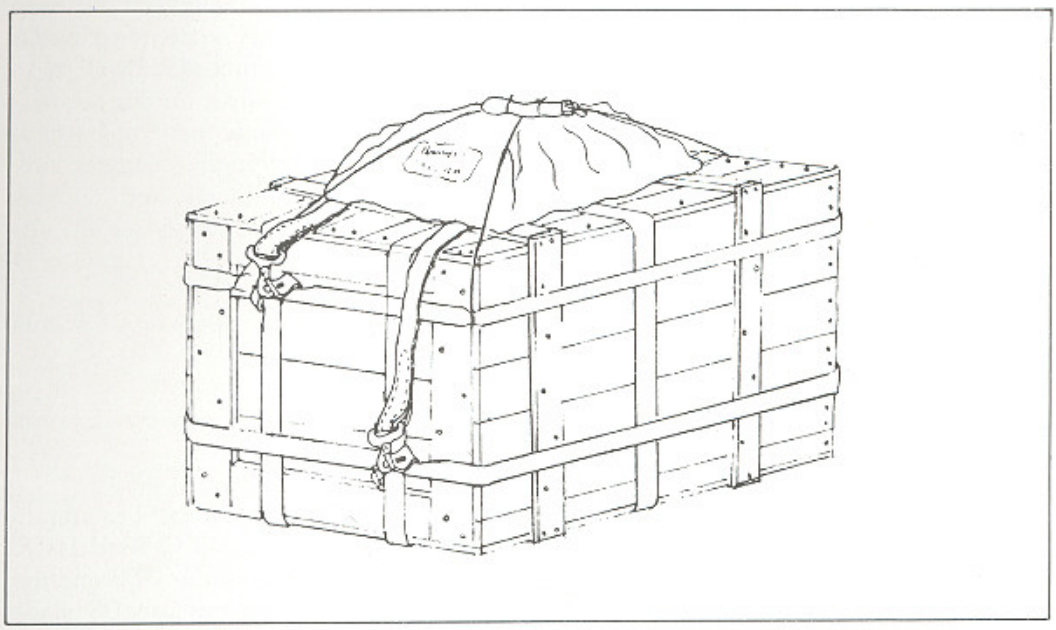
PRESENT SYSTEM

AIRCRAFT CAPABILITY

The RMAF aircraft in service for air dropping currently is the Caribou DHC 4. The aircraft is capable of carrying 5,000lbs in the air drop role. It has been in service since 1968 and is an ideal aircraft for air dropping combat supplies into resrricted jungle DZ. This aircraft can only be used to drop harness loads up to a maximum of 500lbs each; this is due to cargo parachute limitation and to a certain extent due to the characteristics of the aircraft itself.

METHOD OF AIR DROPPING

Manual Despatching - This is the only method that is being used to despatch loads from the Caribaou DHC 4. In this method compact loads in the form of A box B box and gunny sack loads are despatched from a height of 400ft AGL by four despatching crew. The loads are despatched 2, 3 or 4 at a time with the assistance of a roller conveyor which is a standard fitting on the cargo floor compartment of this aircraft.



Compact Load or Harness Pack (A Box)

The maximum number of compact loads that can be positioned on the floor compartment is 30 with the total load weight not exceeding 5,000lbs. To despatch this number of loads the aircraft has to make seven to eight passes over the DZ. This method is the ideal and the most successful for limited scale resupply especially for jungle DZ.

AIR DROP EQUIPMENT

The present type of air drop equipment was acquired for the RAMF twin pioneer aircraft which has been phased out. Since then, there has been no changes and the method of air drop remained unchanged even after conversion to the Caribou aircraft. The current ET is authorized by AFCI 2/75[1] .The present range of air drop equipment was catered to drop loads up to a maximum of 500lbs which hinges on the capability of the 32ft parachute which is the biggest cargo parachute in the air drop ET.

WEAKNESSES

The present method of air drop from the Caribou DHC 4 aircraft has the following apparent weaknesses:

* The limitation in aircraft capability would delay and create problems in large scale air drop as more air drop aircraft will be required.

* The present type of air drop equipment is not suitable to deliver by air drop, guns, A vehicles, support equipment and a large scale of ammunition.

* Favourable air situation is required as the Caribou takes a longer time to despatch its complete load.

* No suitable loading and unloading MHE at forward airfields.

* The present type of air drop equipment is not suitable for use with the Hercules C 130H aircraft.

PROPOSED METHOD OF AIR DROP

TYPE OF AIRCRAFT

A squadron of Hercules C 130H aircraft has been in service with the RMAF since 1976. One of its tactical roles is air dropping of combat supplies, guns and heavy support equipment. To date the SC Air Despatch Coy has no air drop equipment available to utilize this role. However it is to be mentioned in passing that compact loads can be despatched the Hercules C 130H aircraft but it would be a sheer waste as it would be most uneconomical. The Hercules C 130H can carry up to 40,000lbs and despatch its complete load at one pass over the DZ.

METHOD OF AIR DROP

There are various methods of air drop that Hercules C 130H is capable of and is currently being practised by foreign Armed Forces. However for our requirement the two methods that will be most suitable for air dropping combat supplies, guns, A vehicles and support equipment from a Hercules C 130H aircraft is as follows:

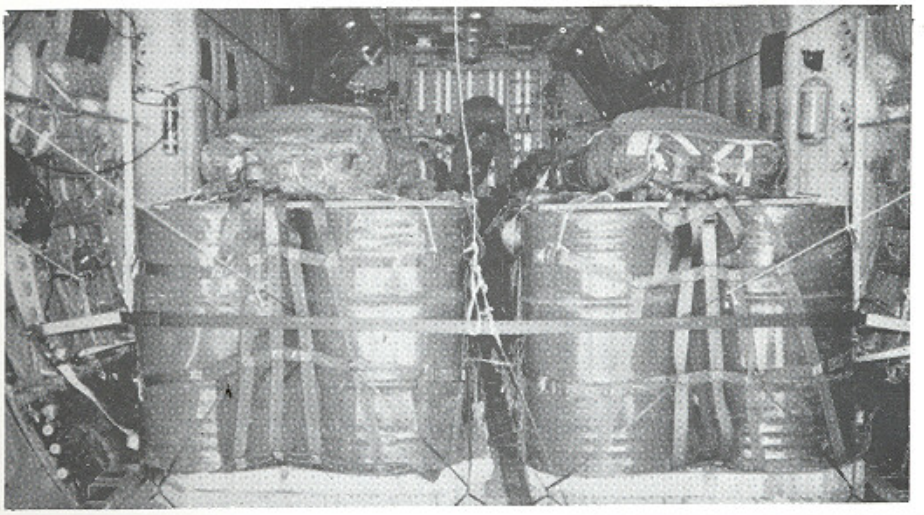
* Container Delivery System (CDS).

* Platform Delivery System (PDS).

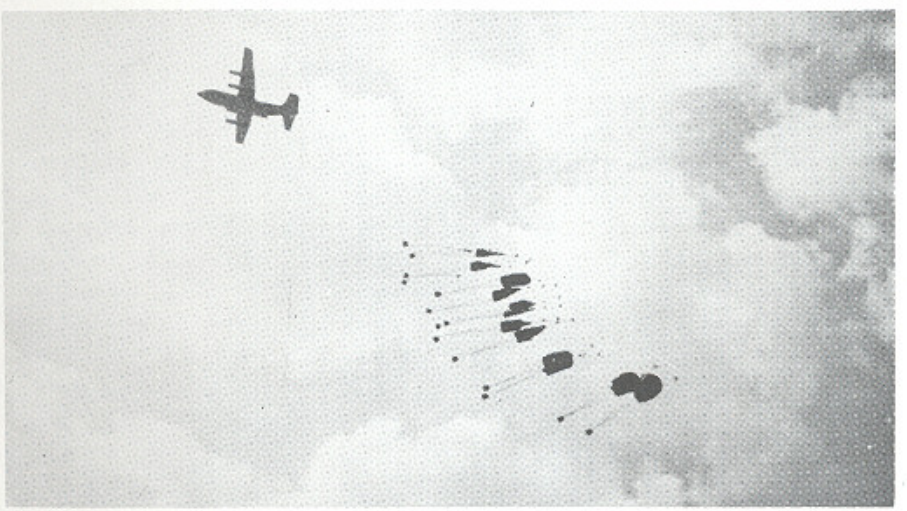
At this stage it must be brought to notice that the Hercules C 130H is US made and as such both the CDS and the PDS method of air drop use US made equipment. As such this article makes reference to US made air drop equipment as authorized for use with this aircraft.

CONTAINER DELIVERY SYSTEM (CDS)

The CDS was designed specially for air dropping relatively small items. These items are stacked and secured in a Cargo Bag Aerial Delivery or also known as a A22. Drums of various dimensions can also be secured in the A22. A maximum of 2,240lbs (1 ton) of load can also be secured in the A22. The Hercules C 130H is capable of carrying 18 X A22.



A22 Loaded in a Hercules C130H for Air Dropping.



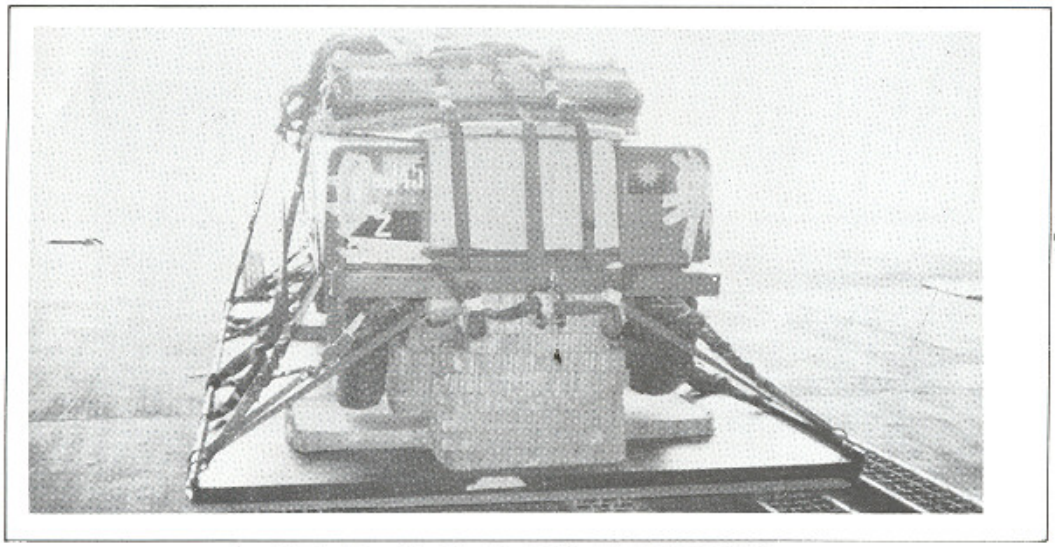
A22 Being Despatched from a Hercules C130H.

In this method of air drop a large quantity of stores or combat supplies can be delivered at one pass over the DZ. The parachute specially designed for use with the A22 is the G 12D cargo parachute 64ft. Incidentally single A22 loads can

also be despatched by auto-gravity. In terms of weight the total load air dropped at one pass over the DZ can ammount to a total of 40,320lbs (18 x A22) using the CDS method of air drop.

PLATFORM DELIVERY SYSTEM (PDS)

This method of air drop is for single loads specially designed to deliver vehicles, guns and mass loads weighing not more then 25,000lbs, on each platform. This is the ideal method of delivering by air drop, transport vehicles, A vehicles, guns and large quantity of ammunition into inaccessible operational areas.



Truck ¾ ton Rigged on Modular Platform for Air Dropping.

The PDS consist of a modular platform on which the loacd is rigged and despached from the aircraft by means of an extraction parachute. The main components of a modular platform is a aluminium panel and steel platform rails. It is available in various sizes to suit the item to be air dropped. It can also be made of timber and plywood for lighter items like assault boots and Gemini raiding crafts. In this instance it is designated as the Combat Expendable Platform (CEP). The parachute specially designed for PDS is the G 11A cargo parachute 100ft.

AIR DROP EQUIPMENT CDS AND PDS

The current holding of air drop equipment in the SC Air Despatch Coy in not suitable for use with the Hercules C 130H aircraft is most impractial and uneconomical. In view of the constrainsts placed in the method of air dropping from a Hercules C 130H, it is strongly proposed that suitable air drop equipment be introduced. Currently air drop equipment is available for use with the Hercules C 130H to deliver the following items:

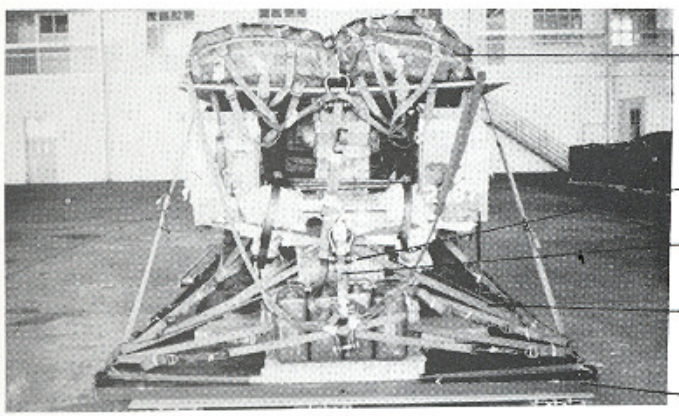
* Truck ¾ ton 4 x 4 and Trailer 2 wheeled.
* Truck 3 ton 4 x 4.
* A vehicles (maximum wt 20,000lbs).
* Support Equipment i.e. Generators, etc.

* Assault Boats, Raiding Craft.

* Gun 105mm Pack How.

* Combat Supplies.

These are some of the common items that can be air dropped. However the Hercules C 130H can deliver practically any item provided it can be rigged on the modular Platform or A22 and its dimensions is within the safety requirement.



Grouping of Equipment PDS.

The range of air drop equipment that is available is highly specialised. It works as a system as such they are interdependent. Be it PDS or CDS they can be grouped for better understanding of the functions they perform as the various types of equipment are components of six groups. These groups are as follows:

* **Container Group.** Provides a means of packaging assorted supplies into unit loads of 1000lbs to 220lbs i.e. A22.

* **Platform Group.** Provides a base for rigging the load and serves as a support while in the aircraft during extraction and ground impact.

* **Restraint Group.** Provides longitudinal, lateral and vertical restraint for load, based on aircraft restraint criteria. It also restraints the air drop item to the platform during extraction, parachute deployment, descent and upon ground impact.

* **Extraction Group.** Provides the required force for extracting the load from the aircraft during flight by means of an extraction parachute. The force created is transferred to deployment of the recovery of main parachutes.

* **Recovery Parachute and Disconnect Group.** Provides velocity deceleration to acheive an acceptable rate of descent and effect release of the recovery parachute upon ground impact of prevent damage from turning of dragging of the item.

* **Energy Dissipation Group.** Absorbs shock of ground impact and reduces possible damage to the item being air dropped.

ADVANTAGES OF CDS AND PDS

The proposed method of air drop from the Hercules C 130H aircraft will have the following advantages:

* A large quantity of items can be air dropped at one pass over the DZ.

* Guns, ammunition and support equipment can be transported over a longer distance into inaccessible areas.

* Formations can be entirely maintained by air if other means of communications is disrupted.

* SSG Airborne operations can be maintained over an extended period by air.

* No requirement for SC air despatch crew to despatch loads as such they can be better utilized on the ground in the air supply organisation.

* Aircraft less vulnerable in an unfavourable air situation.

* Special air drop missions can be carried out including a wide variety of activities ranging form clandestine insertion of personnel, delivery of live animals in remote areas, to delivery of special purpose vehicles, weapons and construction equipment for various operations.

PRESENT AND PROPOSED METHOD OF AIR DROPPING

This article does not intend to rule out the present method of air dropping from the Caribou DHC 4. In the CIW type of operations the present method of air drop couple with helicopter support provided the magnitude of air supply is not on a large scale it is considered the best. However with the Hercules C 130H support available a wide gap has been created in the method of air dropping, purely on the fact that there is not air drop equipment available to utilize one of its tactical role. The point is the present system of air drop from the Caribou DHC 4 its here to stay and the proposed system is to compliment it as the advantages provides greater flexibility in the conduct of conventional warfare.

CONCLUSION

The Army has faced the additional role of conventional warfare and in conformity to this, the present system of air dropping in the logistic support has to be reviewed. The RMAF Hercules C 130H Sqn has the capability of large scale air support. The Army has not considered this fact as such the SC Air Despatch Unites are not equipped fully to carry out air dropping from this aircraft. This situation should not be left to stagnate; a concerted effort should be made to overcome this situation. Needless to say 21 SSG is a strategic force and our present capablity is unable to support by air drop if 21 SSG is to carry out an independent mission as a strategic force. Air drop is the most effec-

tive means of aerial delivery, it reduces aircraft vulnerability and eliminates requirement for landing strip in an operational area.

RECOMMENDATIONS

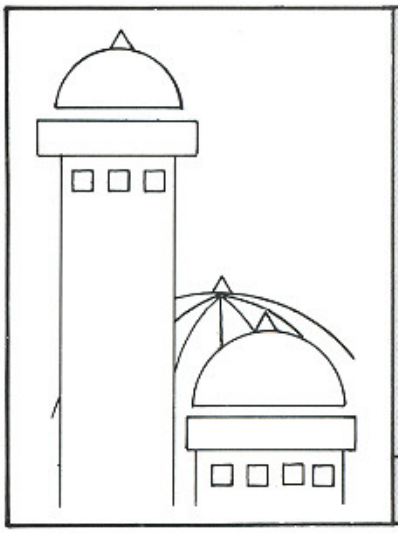
In view of the prevailing situation resulting in the inadequacy faced in air dropping from the RMAF Hercules C 130H aircraft, it is recommended that the Army and the RMAF consider introducing the following methods of air drop:

* Container Delivery System (CDS).
* Platform Delivery System (PDS).

Mejar S.Sivam was commissioned into the Service Corps in Feb 1968, after graduating from RMC Sg. Besi. He is now the Officer Commanding of 21 Tpt Coy SC Special Services Group. Prior to this appointment he was an Instructor at the AD Wing Service Corps School. Mejar S.Sivam has attended air drop courses in United Kingdom and the United States.

"There is an old expression, 'the nakedness of the battlefield.' It is descriptive and full of meaning for anyone who has seen a battle. Except for unusual concentration of tactical activity, such as at a river crossing or an amphibious assault, the feeling that pervades the forward areas is loneliness. There is little to be seen; friend and foe, as well as the engines of war, seem to disappear from sight when troops are deployed for a fight. Loss of control and cohesion are easy, because each man feels himself so much alone, and each is prey to the human fear and terror that to move or show himself may result in instant death. Here is where confidence in leaders, a feeling of comradeship with and trust in them, pays off."

- General Dwight D. Eisenhower
Crusade in Europe



KONSEP IBADAH

dalam

Islám

Kapt. Nor Azam B. Ariffin.

Soal ibadah di dalam Islam selalu diperkatakan oleh umat Islam hari ini tidak kira sama ada dia seorang guru, tentera, ahli politik atau pemimpin masyarakat. Masih boleh dipertikaikan sejauh manakah kefahaman mereka di dalam soal ini. Melalui media massa, ataupun dari para khatib di hari Jumaat selalu diperingatkan "bukan hanya pentingkan ibadat sahaja, hinggakan hal-hal keduniaan diabaikan". Mereka menyeru supaya umat Islam jangan hanya bersembahyang, membaca Quran, berzikir dan sebagainya sahaja tetapi hendaklah bekerja keras bergaul di dalam masyarakat bagi menagih harta keduniaan.

Kalau demikianlah keadaannya kita amat meragukan pengetahuan dan kefahaman mereka terhadap konsep ibadah di dalam Islam. Mungkin di sudut tuntutan Islam terhadap individu Muslim mereka fahami, tetapi mereka tidak memahami bahawa tuntutan ajaran Islam kepada seseorang individu itu tidak terpisah dengan tuntutan lain sama ada akharawi mahu pun duniawi.

Pengertian Ibadat.

Menurut pendapat ahli-ahli bahasa bahawa perkataan ibadat berasal dari bahasa Arab. Pengertian dalam buku-buku bahasa berkisar di sekitar makna patuh, taat, setia, tunduk, menyembah dan menghambakan diri kepada yang lain. Mengikut pendapat Abu A'la Almaududi bahawa dari segi pengertian ain, ba, dal, pokok pengertian ibadat ialah tunduk seseorang kepada ketinggian dan kekuasaan orang lain. Maksudnya tunduk sepenuh tunduk dari segi lahir dan batin.

Dari huraian di atas dapatlah kita fahami bahawa ibadat yang disyaratkan Allah itu lengkap dengan dua perkara berikut:-

- Tindakan menurut, mengikut dan mengikatkan diri dengan segala perkara yang disyaratkan Allah dan diserukan kepada para Rasul sama ada berupa suruhan ataupun larangan, halal atau haram. Inilah dia unsur taat dan tunduk kepada Allah. Orang yang mengingkari suruhan Allah bukanlah dinamakan hamba Allah (mukmin) sebaliknya musyrikin. Walaupun mereka berikrar mengakui bahawa Allah itu Tuhannya, yang menjadikannya, memberi rezeki, namun segala suruhan Allah tidak diikutinya.

yang lengkap bagi manusia baik dari segi lahiriah atau rohaniah. Ini termasuklah dari segi kebudayaan seperti adab tatasusila dan kesopanan, baik dari segi makan minum hinggalah cara masuk ke tandas. Begitu juga dari segi politik dan bidang sosial.

Kita dapati kitab suci Al-Quran sering menghadapkan perintah-perintah dan hukum-hukum syari'iah kepada hambaNya yang beriman dalam berbagai aspek kehidupan. Umpamanya dalam satu surah iaitu Surah Al-Baqarah sahaja kita temui sejumlah tugas atau kewajipan yang ditetapkan ke atas orang-orang yang beriman seperti ayat di bawah ini.

Ayat 178. *"Wahai orang-orang yang beriman telah diwajibkan ke atas kamu menjalankan hukum kisas dalam perkara orang yang mati di bunuh".*

Ayat 183. Yang bermaksud *"Wahai orang-orang yang beriman telah diwajibkan ke atas kamu berpuasa sebulan seperti yang telah diwajibkan ke atas mereka yang terdahulu daripada kamu, mendapat takwa dengan mengerjakan puasa itu".*

Semua perkara tersebut iaitu kisas dan puasa juga lain-lain adalah kewajipan-kewajipan urusan hidup yang telah ditetapkan Allah ke atas hamba-hambaNya. Walaupun begitu masih ramai lagi umat Islam yang jahil terhadapNya. Sesungguhnya beribadat kepada Allah tidaklah terbatas pada mengerjakan sembahyang, puasa, haji dan hal-hal yang berkaitan dengannya, ramai yang beranggapan apabila menunaikan fardhu dan syiar Islam bererti mereka telah menyempurnakan segala hak Allah dan kewajipan ubudiah terhadapNya.

Firman Allah dari surah Al-Jamaah ayat 10 bolehlah kita kaitkan. Ayat itu bermaksud *"Apabila telah ditunaikan sembahyang, maka bertaburanlah kamu ke muka bumi dan carilah kurnia Allah, dan ingatlah Allah banyak-banyak agar kamu menjadi orang yang beruntung".* Ayat ini bermaksud supaya kita bertaburan di merata muka bumi untuk mencari kurniaNya yang lebih banyak selepas sembahyang, kerana dalam sembahyang itu kurnian Allah adalah terhad. Ertinya pahala di luar sembahyang adalah lebih banyak daripada di dalam sembahyang.

Sebenarnya syiar-syiar agama yang besar dan rukun-rukun asasi bagi pembentukan Islam itu walaubagaimana penting dan tinggi statusnya ia hanya sebahagian daripada jenis ibadat kepada Allah, bukanlah ia merupakan seluruh ibadat yang dikehendaki Allah daripada hamba-hambaNya. Benarlah bahawa manusia dicipta Allah di atas asas dan tujuan beribadat kepadaNya dan menjadikan ibadat itu matlamat dan tanggungjawab manusia yang merangkumi seluruh urusan hidupNya.

Tunduk Kepada Syariat Dan Sistem Allah.

Berdasarkan kepada hakikat bahawa ibadat manusia hanyalah kepada Allah, maka pastilah manusia menundukan segala urusannya mengikut cara yang disukai dan diredhai Allah. Ianya juga perlu menyesuaikan hidupnya selaras dengan petunjuk Allah dan syariatNya.

Perbezaan antara orang mukmin dan bukan mukmin ialah orang mukmin sentiasa bebas dari kehambaan kepada dirinya dan kepada makhluk-makhluk lain sebaliknya ia menjadikan dirinya hamba kepada Allah semata-mata, ia bebas dari cengkaman nafsu kepada mentaati Allah. Orang-orang mukmin

Sepertimana firman Allah Taala dalam Al-Quran (Ar Raad) (15 - 17): "Kepada Allah juga semua penghuni langit dan bumi sujud beribadat sama ada secara sukarela atau terpaksa dan bayangan-bayangan mereka pada waktu pagi dan petang, tanyalah mereka siapakah Tuhan pemelihara langit dan bumi".

Dengan adanya kesedaran diri betapa perlunya diri kita kepada Allah yang memiliki segalanya di langit juga di bumi, akan lahirlah keinsafan akan kekurangan pada diri kita (makhluk yang bersifat fana). Hanya dengan itu sajalah dapat memperdekatkan kita dengan Allah.

● Perkara yang penting di sini ialah pengikatan diri, patuh kepada segala yang disyaratkan Allah itu hendaklah lahir dari hati yang cintakan Allah. Hanya pada Allah sahajalah yang layak dikasihi. Allah memuliakan manusia dengan meninggikan darjat mereka berbanding dengan makhluk lain. Allah jua memberikan berbagai-bagai kenikmatan dari berbagai segi.

Seterusnya sesiapa yang mengenali Allah sudah pasti ia mencintainya. Contohnya Rasullullah (s.a.w.) dikira orang yang paling banyak sekali cintanya kepada Allah kerana baginda adalah orang yang paling tinggi pengenalannya. Baginda merasa tenang dan bahagia bila berasa dalam sembahyang, kerana sembahyang menjadi alat perhubungan secara langsung antara hatinya dengan Allah.

Keterangan di atas memaparkan hakikat sebenar ibadat dalam Islam yang merangkumi dan mencukupi dua faktor penting iaitu tunduk dan cintakan sepenuhnya kepada Allah.

RUANG IBADAT

Memang kita tidak nafikan yang tuntutan Islam terhadap individu muslim itu adalah menyeluruh dari setiap aspek kehidupan dunia dan akhirat. Ini dijelaskan oleh Rasulullah (s.a.w.) kepada kita dalam sabdanya yang bermaksud:

> *"Beramallah untuk kehidupan kamu di akhirat, tetapi jangan kamu lupakan bahagian kamu di dunia".*

Dari sabda di atas dapat difahami yang Islam inginkan kita beramal untuk kebajikan akhirat tetapi soal kehidupan di dunia jangan pula dilupakan. Di sini dapat disimpulkan yang ruang atau skop ibadah meliputi beberapa perkara berikut:

Meliputi Ajaran Agama Seluruhnya.

Ibadat mempunyai skop yang luas meliputi segala jenis amalan fardhu seperti sembahyang lima waktu sehari, puasa, zakat dan juga perkara-perkara sunat seperti berzikir, membaca Al-Quran, doa, tasbih, tahlil, takbir dan seumpamanya.

Ibadat merangkumi dua tugas yang besar yang menjadi tunjang bagi semua perkara iaitu menyuruh berbuat baik dan mencegah dari melakukan kemungkaran. Sebenarnya, seluruh ajaran Islam ini dapat kita simpulkan dalam lima hukum - wajib, sunat, haram, makruh, harus. Kelima-lima hukum ini mestilah menyuluh setiap tuntutan hidup manusia seperti soal-soal akhirat seperti naik haji, membaca Al-Quran dan lain-lain lagi.

Meliputi Urusan Hidup Sepenuhnya.

Bila kita faham agama dan seluruhnya ajarannya, maka kita akan tahu bahawa agama Islam membawa sistem hidup

hanya akan terikat pada sistem (suruhan) Allah yang menjanjikan pembalasan yang baik. Ikatan yang kukuh ini akan melahirkan keimanan yang tulin.

Bagi orang-orang yang beribadat pada Allah dengan mengerjakan sembahyang, puasa, haji, zakat tetapi masih mengamalkan perkara-perkara buruk seperti minum arak, riba, judi, menolak hukum-hukum syariat tidak dikira beribadat. Begitu juga dari segi tatasusila dan seumpamanya.

Di atas dasar inilah sesiapa yang berani mendakwa bahawa ia berhak membuat undang-undang dengan kehendaknya sendiri sama ada undang-undang ini merupakan suruhan atau tegahan menghalalkan sesuatu atau mengharamkan tanpa izin Allah maka sebenarnya ia telah melampaui batas kuasanya, keluar dari bidang tugasnya dan menjadikan dirinya seterusnya Allah.

Menurut ikatan iman, seseorang mukmin hendaklah menyerah teraju hidupnya kepada Allah di bawah pimpinan RasulNya berpandukan oleh wahyuNya yang terpelihara daripada penyelewengan. Ikatan tersebut membuat seseorang berikrar sepenuh hati, ini menjadikan seseorang itu melepaskan diri dari kekuasaan nafsunya kepada mentaati Allah.

Amalan Kemasyarakatan Yang Berfaedah.

Islam telah meluaskan bidang ibadat seluas-luasnya dan melapangkan daerah kegiatannya hingga meliputi segala jenis amalan yang mungkin. Sebahagian daripadanya tidak terlintas di hati bahawa Islam menganggap amalan-amalan itu ibadat dan pendekatan kepada Allah.

Sebenarnya setiap amalan atau kerjasama yang menguntungkan individu dan masyarakat adalah dikira sebaik-baik ibadat dalam Islam sekiranya orang itu bertujuan baik ikhlas dan jujur tidak mencari nama atau sanjungan daripada masyarakat.

Berdasarkan kepada konsep ibadat tersebut setiap perbuatan yang boleh mengurangkan penderitaan orang susah, menyembuhkan luka orang ditimpa malang, membangunkan orang yang rebah dan seumpamanya dengan niat yang baik semata-mata kerana Allah adalah merupakan ibadah.

Berapa banyak amalan atau perbuatan yang berfaedah kepada masyarakat telah diakui Islam sebagai ibadat dan sebahagian daripada cabang-cabang iman yang layak menerima ganjaran dari Allah.

Semangat Dan Roh Islam.

Dengan semangat seperti inilah Rasulullah (s.a.w.) menyatakan setiap muslim sekalipun terbatas daya kuasanya, kemampuan dan keupayaannya supaya menunaikan ibadat tanpa mengira masa, keadaan dan tempat. Setiap insan boleh menunaikan menurut kudrat dan keupayaannya sama ada dari golongan kaya atau dari golongan miskin, dari golongan gagah atau lemah dan golongan cerdik pandai atau jahil, masing-masing dikehendaki memberi sumbangan yang terdaya kepada masyarakat.

Sumber Kebajikan Dan Kebaikan.

Dengan amalan-amalan seperti menunjuk jalan kepada orang buta, memandu orang yang sesat, membantu orang-orang dalam kesusahan dan sebagainya dikira sedekah dan ibadat

oleh baginda Rasulullah (s.a.w.). Dengan ajaran-ajaran ini seseorang muslim akan hidup bukanlah sebagai bebanan dalam sesebuah masyarakat tetapi sebagai sumber kebaikan dan punca kebajikan mengalirkan rahmat dan simpati kepada masyarakat sekeliling, melimpahkan manafaat dan keberkatan, sentiasa membuat kebajikan dan menggalakkan orang melakukannya, berkorban dan bersedia berkorban untuk kepentingan orang ramai.

Syarat Setiap Amalan Hidup Menjadi Ibadat.

Segala amalan duniawi yang dilakukan oleh seseorang bagi faedah hidupnya sendiri ataupun kepentingan keluarganya itu merupakan sebahagian daripada ibadat dan pendekatan pada Allah, sekalipun berupa kepentingan individu. Umpamanya pesawah, penoreh getah, nelayan, ahli-ahli perniagaan, pekerja di pejabat, adalah merupakan sebahagian daripada ibadat berjihat ke jalan Allah Seharusnya amalan (mencari rezeki) yang dilakukan itu hendaklah diakui Islam (halal) dan sesuai dengan hukum syar'iah dan tidak bercanggah dengan hukum-hukum, ianya juga haruslah beserta dengan niat yang baik, menepati kehendak-kehendak Nabi (s.w.t.), tidak melampaui batas dan tidak menindas individu lain dan akhir sekali tidak lalai dan cuai menjalankan kewajipan ibadat yang lain seperti sembahyang, puasa dsbnya.

Memenuhi Kehendak Nafsu.

Memenuhi kehendak nafsu pun dikira ibadat. Keperluan-keperluan tabii (tuntutan hidup) yang dilakukan oleh setiap muslim bagi memenuhi nafsunya sebagai manusia seperti makan, minum, hubungan suami isteri dan sebagainya. Dalam hubungan ini alim ulama berkata: *"Ini adalah dari kesempurnaan rahmat Allah di atas hambanya yang mana Allah memberi pahala kepada mereka dalam perkara memuaskan nafsu".*

Seseorang muslim yang taat kepada Allah akan sanggup mengorbankan segala-galanya sama ada melalui fikiran, hati, lidah atau pancaindera yang lain, seluruh tubuh badannya malahan harta benda, keluarga dan tanah airnya.

Kesan-kesan Dalam Diri Dan Dalam Kehidupan

Luasnya pengertian ibadat dalam Islam sepertimana yang telah dihuraikan membawa kesan-kesan yang amat baik dalam diri individu atau dalam mana akan merasakan dirinya diperlukan dan memerlui. Antara kesan-kesan yang paling jelas dan paling mendalam ialah:

- Akan mencorakan hidup dan amalan seseorang muslim yang merasakan dirinya sentiasa terikat dan patuh pada hukum-hukum Allah. Disertai pula dengan niat yang jujur, ikhlas dan kusyuk serta taat kepada Allah. Ini akan mendorongkannya memperbanyakkan lagi amalan-amalan berfaedah yang mana memberikan keuntungan kepada dirinya sendiri dan alam sekelilingnya.

- Ia akan memberikan satu matlamat dalam hidup seseorang muslim, menjadikan dia rela dengan Tuhan Yang Esa dan memusatkan kepadaNya segala usaha amalannya dalam bidang agama dan dunia.

Firman Allah dalam surah Al-Baqarah ayat 115 bermaksud "Timur dan Barat adalah hak Allah, maka ke arah mana sekalipun kamu halalkan di situlah wajah Allah". Dengan arahan begini seseorang muslim akan menumpukan seluruh kepentingan hidupnya kepada Allah dan

membulatkan hatinya kepada Allah sahaja.

Dari keterangan di atas jelaslah ibadat dalam Islam begitu luas pengertiannya dan banyak pula bidangnya. Semuanya ini adalah ibadah yang akan mendatangkan ganjaran daripada Allah sama ada di dunia ataupun di akhirat kerana setiap yang kita usahakan di dunia ini, ianya akan mendatangkan keuntungan dunia. Disamping itu kalau semua usaha ikhtiar ini tepat dengan Al-Quran dan sunnah, maka ia akan mendatangkan pahala dan balasannya adalah di akhirat. Jadi umat Islam sebenarnya mendapat dua keuntungan di dalam menjalani kehidupan ini. Di dunia mendapat kejayaan dan di akhirat juga mendapat keuntungan kerana memperolehi syurga.

Kapt Md Nor Azam bin Hj Ariffin adalah bekas putera maktab tentera diraja. Ditauliahkan ke rejimen askar melayu diraja pada Dis 1977. Berkelulusan Diploma Perakaunan Institut Teknologi MARA (ITM) dan sekarang bertugas sebagai pegawai setaf 3 koordinasi jabatanarah infantri.

"Dan barangsiapa yang mencari selain dari ISLAM menjadi Agama, sekali-kali tidaklah akan di terima daripadanya. Dan dia di Hari Akhirat akan termasuk orang-orang yang rugi."

Ali Imran: 85