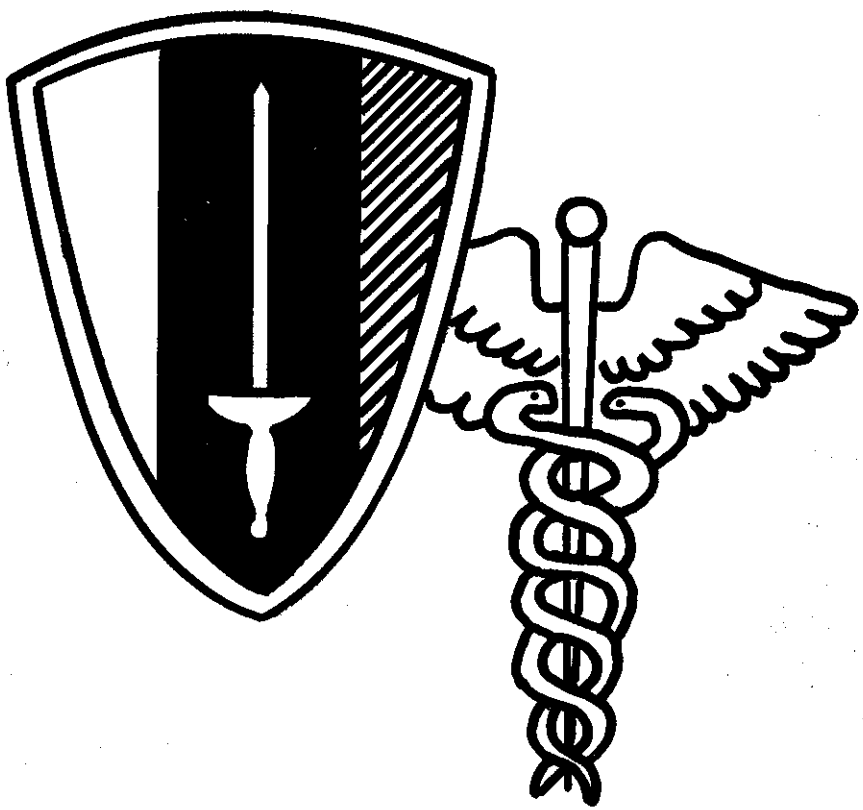
USARV



MEDICAL NEWSLETTER

VOL 1 NO 6 AUG - SEP 1966

USARV MEDICAL NEWSLETTER

August - September 1966 Volume 1 Number 6

CONTENTS:

Published bi-monthly by Headquarters United States Army Vietnam solely in the interest of Army medicine. Information appearing in this publication is for use by this command and does not necessarily reflect the opinion of the Department of the Army, the USARV Surgeon or the Editor. Items submitted for publication should be typed single spaced in final corrected form and addressed to the Editor, USARV Medical Newsletter, Hq USARV Surgeon's Office, APO 96307.

THERAPEUTIC VENTILATION

Since we realize that some of our articles are controversial and also that readers may have important information to add to an article, letters to the editor giving opinions, criticisms, comments and additional experiences will be welcome and appreciated.

HEADQUARTERS
3D SURGICAL HOSPITAL (MOBILE ARMY)
APO 96491

2 August 1966

Letter to the Editor
USARV Medical Newsletter
USARV Surgeons Office
APO 96307

Sir:

It is pleasing to know that controversial articles are welcome in our newsletter. Certainly the opportunity to publicly vent one's wrath should please a great number of us. The "Summary of Year's Activity" by the three Plans and Operations Officers of the USARV Surgeon's Office in the June-July Newsletter is a prime example of this policy.

Having served as C.O. of an Orthopedic Surgery Detachment at 8th Field Hospital, Nha Trang, from November 1965 through February 1966 and at 93d Evacuation Hospital, Bien Hoa, from March through June 1966 and now commanding the 3d Surgical Hospital at Bien Hoa I feel qualified to sympathize with the problems of those three overworked officers.

"There has been more work to do than the staffing level would indicate" From the Ia Drang Valley and Pleiku fight of the 1st Air Cavalry to the latest combats of the present divisions in-country I have seen anesthetists, nurses, doctors and Corpsmen willingly work 24 to 36 hours at a stretch until the wounded were cared for. In many of our hospitals the Corpsmen are on twelve hour shifts with no relief in sight yet.

"Data available... to make valid predictions of disease... and injury... in a counter-insurgency tropical environment... was non-existent". It seems this would be true for any war in any climate (similar quotations can surely be found in the Medical Histories of the War of the Rebellion through Korea). However based on the many contingency plans constantly updated by the Operations Section of the Surgeon General's Office I am sure an educated guess could then be modified by actual experience.

"The... inability of medical units... to accept temporary austere conditions and 'get with it' and become operational," The officer and enlisted quarters of the 2d Surg Hosp and 85th Evac, and the EM quarters of the 93d Evac are still tents. The EM of the 8th Field and the personnel of the 3d Surg Hosp have only recently moved into temporary buildings. Two of the new surgical hospitals are working in seas of mud. Most units are still using wingtank reservoirs for field showers and running on a minimum number of generators. But, then, perhaps austere has a different meaning when one is housed in villas with real indoor plumbing.

Perhaps the fault lies in communication between levels. I have met General Westmoreland thrice in his various visits to hospitals. I spent several pleasant hours conducting General Johnson, Chairman of the Joint Chiefs through the wards as he shook hands with each patient and wished them a better New Year. I have had the opportunity to work with the Deputy Group Commander in the North and the Group Commander in the South and their staffs as they make frequent visits to our hospitals. However, in the last ten months I did not get to meet or talk with these Operation Officers nor explain to them directly or show them physically with which problems we were faced. I am sure the many letters and papers we forwarded to Saigon were perused carefully though.

I wish those three Operation Officers good luck in their new assignments as they leave the "Paris of the Orient" and hope that among their souveniers of Viet Nam they have the recording of Barry Sadler's "Garret Troupers".

Respectfully,

RUSSELL W. VAN NORMAN
Major, MC
Commanding

EDITOR'S NOTES

The August - September issue of the USARV Medical Newsletter marks the first appearance in its contents of a letters-to-the-editor page, cartoons and pictures of personnel and events of interest in Vietnam. The article in the last issue by Majors Bigham, Lesher and Rose entitled "Summary of Years Activity" was expected to bring forth comments of a controversial nature, and Major Van Norman's letter leaves little doubt that he is one who has a difference of opinion in the matter. Such articles and rebuttals or discussions are most welcome in this publication, and they are greatly encouraged.

Much of this issue is devoted to coverage of the Preventive Medicine Conference held at the Surgeon's Office on 27 and 28 June 1966. This meeting, the only one of its kind on such a large scale in Vietnam featured many excellent articles from Army, Navy, Marine and Air Force Preventive Medicine personnel. While it would be highly desirable to present all of them in this issue, this is not feasible. The articles published here constitute a cross section of the topios presented and of the organizations represented at the conference.

Major Taras Nowosiwsky who organized the meeting, acted as host and moderator deserves the lion's share of credit for its success. Seldom has a conference received more favorable comment from those who attended. The trials and tribulations of the various speakers and their solutions of difficult problems are presented in such a way as to give one the sensation of viewing history in the making. As such these articles have a much more dynamic and meaningful quality than many papers dealing with medical historical subjects.

Captain William O. Lamb, MSC and Lt Colonel Robert Joy, MC deserve much appreciation for the monumental task of arranging for the recording, transcribing and editing of the presentations. The editor has taken the liberty to provide titles and to further edit the articles in some instances.

With this issue I terminate my position as Editor of the Newsletter and indeed I will (God willing) have left the command when it is distributed. Willingly and cheerfully I turn over the reins to Lt Colonel Arnold W. Johnson, MC my successor as Psychiatry Consultant and as Newsletter Editor. I'm sure the splendid cooperation of all AMEDS units will continue for him in the future. The 3rd Field Hospital has submitted several articles for publication in the next issue and an article to be published on nursing care of patients has also been enthusiastically received.

Thanks are in order to the entire staff of the USARV Surgeon's Office for their suggestions and comments. Special mention should be made of the "Charley" cartoons by Sfc Bobby R. Dowdy; these are quite talented. Greatly appreciated also is the endless job of typing done principally by Specialist John J. Gistedt and to a somewhat less but important extent by Specialists Fred Humphreys and Ron Everman.

FINI

Figure 1: Members in attendance at the Preventive Medicine Conference, 27 and 28 June 1966, Office of the Surgeon, USARV.

Figure 2: Lt Colonel Joe Molloy, MC, Commanding Officer of the 3rd Field Hospital chats with distinguished visitor Arthur Godfrey during the latter's visit on 4 August 1966.

Members Present at the Preventive Medicine Conference
27 and 28 June 1966, Office of the Surgeon, USARV

	NAME	RANK	ORGANIZATION
1.	Allin, Robert C.	Capt, MC	2d Bn 32d Arty
2.	Anderson, Phillip H.	Capt, MC	173d Abn Bde
3.	Atkinson, L.	Capt, MC	Hq, Aust. Force V.
4.	Barreca, Nicholas E.	Capt, MC	1st Avn Bde
5.	Bashaw, Jack D.	Major, MC	12th USAF Hospital
6.	Bayer, Johan E.	Capt, MSC	12th USAF Hospital
7.	Bilderback, Robert O.	Capt, MC	6th Bn 71st Arty
8.	Blohm, R. W.	Lt Col, MC	Hq, USARV
9.	Bourke, A. T. C.	Capt, MC	USAMRTV
10.	Bowles, Robert L. Jr.	Capt, MSC	1st Bde, 101st Abn Div
11.	Cataldo, Joseph R.	Major, MC	20th Pvnt Med Unit
12.	Cerruti, Alfred S.	Lt, MSC	1st Marine Division
13.	Champlin, Gerald A.	Lt Col, MC	Hq, USMACV
14.	Chin, Wing	Capt, MC	25th Inf Div (-)
15.	Chung, In Won	Capt, MSC	6th Evac Hosp (ROK)
16.	Durey, Richard A.	1st Lt, MSC	20th Pvnt Med Unit
17.	Eisman, Leon P.	CDR, MSC	1st Marine Division
18.	Feinstein, Bernard	US Civ	Public Health Br, USAID
19.	Gaines, Sidney	Col, MSC	USAMRTV
20.	Gardner, William R.	Capt, MC	3d Bde T.F., 25th Inf Div
21.	Gensler, Jay D.	Capt, MSC	20th Pvnt Med Unit
22.	Gorby, Earl W.	Lt Col, MC	1 FFORCEV
23.	Gordon, John N.	Lt Col, MC	Hq, USARV
24.	Gouchenour, William S. Jr.	Col, VC	WRAIR, WRAMC, Wash, D.C.
25.	Griffith, Llewellyn	Major, MSC	Hq, 7th AF
26.	Joy, Robert J.	Lt Col, MC	USAMRTV
27.	Kim, Doo Hie	Capt, MC	6th Evac Hosp (ROK)
28.	Lamb, William O.	Capt, MSC	Hq, USARV
29.	Lennon, P. A.	Major, MC	Hq, Aust Force V.
30.	Marshall, John D.	Lt Col, MSC	USAMRTV
31.	McGreevy, John J.	CDR, MC	1st Marine Division
32.	Miura, Calvin M.	Capt, MC	44th Med Bde
33.	Nowosiwsky, Taras	Major, MC	Hq, USARV
34.	Oh, Chang Hyun	Capt, MC	6th Evac Hosp (ROK)
35.	Payne, Richard L.	Capt, MC	18th Engr Bde
36.	Peacock, J. L.	Capt, MSC	Hq, USMACV
37.	Rodgers, William O.	Lt Col, MC	Hq, Aust Force V.
38.	Soott, Thurman L. Jr.	Capt, MC	II FFORCE V.
39.	Smith, Robert G.	LCDR, MC	Hq, USMACV
40.	Sosby, John T.	Capt, MC	1st Inf Div
41.	Stockhard, Joe L.	US Civ M.D.	Public Health Br, USAID
42.	Van Peenen, P. E. D.	LCDR, MC	Pvnt Med Unit, Nav Supp Act, Da Nang
43.	Vandevelde, Alexander G.	Capt, MC	1st Cav Div
44.	Wier, James A.	Colonel, MC	Hq, USARV
45.	Willman, James R.	Capt, MSC	20th Pvnt Med Unit

Figure 3: Major General Charles W. Eifler, Commanding General, 1st Logistical Command presents the Legion of Merit to Lt Colonel Walter C. Gordon, MC during change of command ceremonies at the 93rd Evacuation Hospital, Long Binh on 9 August 1966.

Figure 4: Lt Colonel Robert W. Irvin, Jr., MC became the new Commanding Officer.

VENEREAL DISEASE IN VIETNAM

By: Lt Colonel Raymond W. Blohm, MC

From the interest shown yesterday in venereal disease and with my short time in the command, I feel as if I am putting my head into the lion's mouth - and some of the lions have very sharp and long teeth. I have not yet had personal experience in the treatment of V.D. in Vietnam so I must resort to data provided by some of my predecessors, the TB Meds, etc. I had a chance this morning to contact an expert, Lt Colonel Harman, Commanding Officer of the 36th Evacuation Hospital, who was Chief of Dermatology, Walter Reed General Hospital and Dermatology and VD Consultant, OTSG, until his arrival here several months ago. He has had experience in Vung Tau, in the treatment of gonorrhea in particular. I am bringing you his thoughts in addition to the "school" solutions.

The new TB Med 230 (Nav Med T 55052-11A, AF Med 161-1-12) "Treatment and Management of Venereal Disease" was published on 9 July 1965, so it is fairly current. It applies to all services, and is available through normal publication distribution channels. If you don't have the current one, make every effort to get a copy.

Lt Colonel Sheehy, my predecessor, summarized most of this TB Med in a USARV Regulation on 22 February 1966, Subject: Treatment of Venereal Disease. Distribution was to all the major units, and I assume this has found its way down to all the different Army Units. (At this point, a show of hands indicated only 10 percent of the audience had actually seen this regulation.)

The school solution for the treatment of gonorrhea begins with the diagnosis. You should treat immediately on the basis of typical clinical findings, but you should always make an attempt to confirm the diagnosis by Gram stain. If you have no laboratory immediately available, you do not have to wait for confirmation before actually starting therapy. In every instance try to get the smear and have it recorded as positive or negative. On day one, with a clinical diagnosis, preferably confirmed as positive, the treatment recommended by the TB Med. is aqueous procaine penicillin, 2.4 million units intramuscularly. On day four, if the patient is not improved, and if the smear remains positive, he is retreated with a single dose of 4.8 million units of aqueous procaine penicillin. Lt Colonel Harman says that a slight watery or mucoid discharge should be desregarded if the smear is negative. This latter discharge may last from 7 to 10 days, is not unusual, and should alarm neither the doctor nor the patient. By day eight, if the patient has not improved, he is to be hospitalized for diagnostic studies, special evaluation of the organism, and a search for Trichomonas, prostatitis, urethral strictures, etc. The drugs and doses listed above should be considered minimum doses acceptable in good medical practice. It is well known that there is some relative resistance to penicillin by the local gonococcus - from the comments made yesterday it seems to be more of a problem in some areas than others. In no instance

should Bicillin be used for treating gonorrhea. This is absolutely verboten and is probably one of the biggest causes of the development of penicillin resistance. It is Lt Colonel Harman's opinion that, with adequate treatment and observation of the patient, all cases of gonorrhea can be treated with appropriate penicillin therapy. He recommends that gonorrhea at the present time be treated with 2.4 million units of aqueous procaine penicillin I.M. for two successive days. The patient is checked three to four days post-treatment. If a purulent urethritis which is still positive by smear remains, the treatment is daily injections from four to seven days of 2.4 million or 4.8 million units of penicillin. It is emphasized to the patient that he should avoid frequent stripping of the penis which might produce a mechanical urethritis. If this treatment fails, a urologist should be consulted to look for local pathology such as strictures or other causes of a prolongation of the infection, and cultures referred to laboratories for sensitivity study and to rule out other or mixed infections.

The treatment in a patient who is allergic to penicillin, as given by the TB Med, is tetracycline, 500 mg, four times daily for three days. Some patients after having been treated who continue to have urethritis or return after seeming to improve, despite their denial of re-exposure probably have an actual reinfection. In a patient with a continued problem nonpunitive restriction may be recommended for daily observation and continued therapy. An STS should be taken before treatment and monthly for three months, post-treatment.

I don't believe from what I heard yesterday that the treatment of syphilis is particularly a problem. Any patient with ulcerated or chancre-like lesions on the penis has to have dark field examinations for three successive days while withholding all antibiotics except oral sulfa drugs.

The treatment of primary and secondary syphilis is 2.4 million units of Bicillin I.M., followed in one week by the same dose for a total of 4.8 million units. An alternate therapy is procaine penicillin G in oil with 2 percent aluminum monostearate (P.A.M.) with 5 injections I.M. of 1.2 million units at 48 - 72 hour intervals for a total of six million units. Patients allergic to penicillin should receive erythromycin 500 mg qid for 15 days. STS's should be repeated every two months for six months. No spinal tap is necessary in primary and secondary syphilis. If the serology was positive originally it will become negative within a six month period. If a rising titer occurs within that period, the patient has probably been reinfected and will have to be retreated. What do you do in the field with those patients who have painful, dirty penile lesions? It is nice to have a diagnosis if the means are available to you, but the USARV Regulation points out that it really is of little importance therapeutically. The doctor should make his clinical impression, state his grounds for a diagnosis

of chancroid, lymphogranuloma (LGV), etc., state the findings from a smear, or take a smear or scraping for later study from the lesion, and initiate treatment. The treatment for chancroid, LGV and granuloma inguinale is Tetracycline 500 mg, qid for one week and 250 mg qid for the next two weeks, preferably on an empty stomach. In cases where a primary lues chancre versus chancroid ulcer is the main differential diagnosis, treatment of chancroid, with Sulfasoxazole, one gram qid for 7 - 10 days, saline soaks, etc., may be started for treatment of chancroid while not masking the diagnosis of syphilis. Broad-spectrum antibiotics may mask syphilis and should not be used until three negative darkfields are obtained.

Keep in mind that in this country you may see many false positive serologies, due to malaria, other infectious diseases, exanthama, etc. Also, remember that secondary lues may be a cause of fever, myalgia, rash, lymphadenitis, pharyngitis, and other symptoms common to many of our F.U.O.'s.

Questions and Comments:

COL GOCHENOUR: What do you think of the combined therapy we discussed yesterday? I think it has been demonstrated in this area that there is often associated with gonorrheal infection a staphylococcus infection which will inactivate any amount of penicillin you can give a patient. This organism is not responsive to penicillin but does respond to tetracycline.

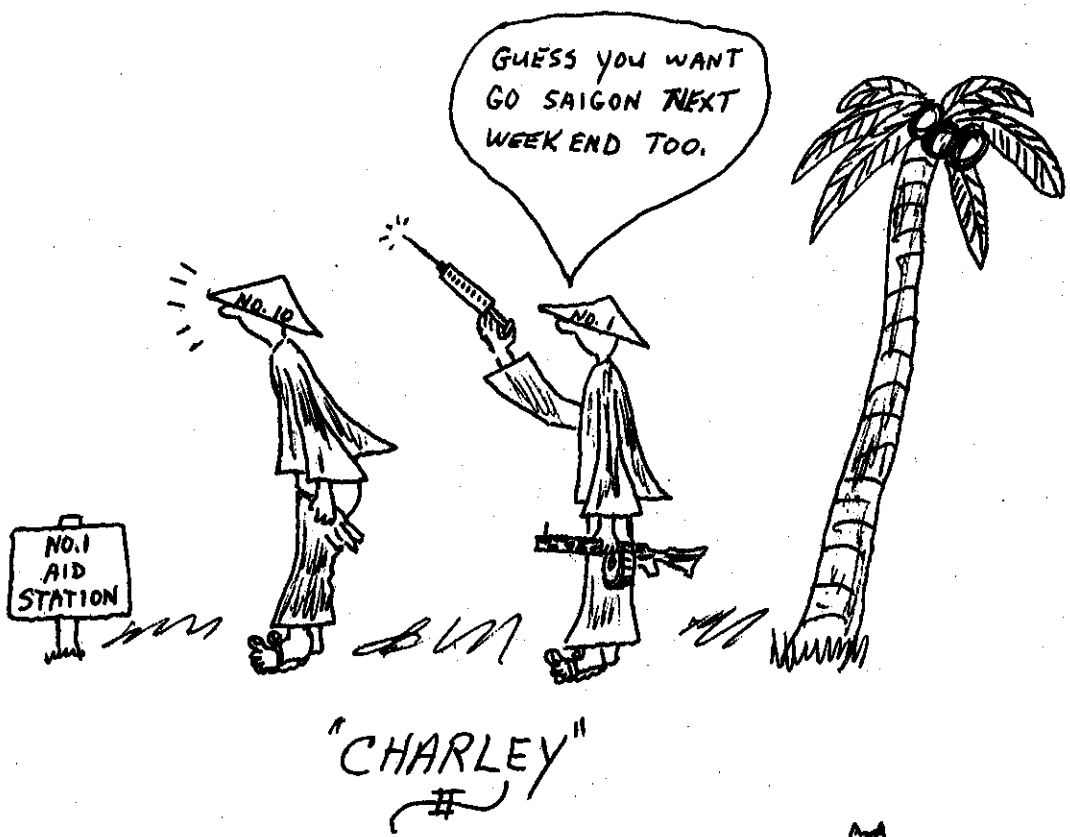
COL BLOHM: My thoughts on this are that we have little documentation of the frequency or amount of "penicillin-resistant" gonorrhea. Laboratory bacteriologists ordinarily see only cultures sent them from "resistant" cases and are struck by the frequency of other organisms and resistance, whenin reality they are seeing only a pittance of cases. Physicians, being human, are also more inclined to remember the case or two that was difficult to treat while not documenting the many cases that readily responded. Careful and accurate records should be kept in this regard. It has been obvious in this meeting that treatment of gonorrhea has not been standardized and that recommendations of therapy are not being followed, eg., Bicillin is being given for gonorrhea in some areas. Until adequate and proper penicillin treatment is given, it should not be condemmed in favor of broad-spectrum antibiotics. In regard to penicillinase producing staphylococci being present with gonococci and causing resistance to penicillin treatment, I believe this is both infrequent and relative if enough penicillin is given. Likewise, penicillinase producing staphylococci are quite likely to become tetracycline resistant very rapidly if it is injudiciously used "across the board" for all gonorrhea cases. For the above reasons, I cannot support routine tetracycline treatment for uncomplicated gonorrhea.

LT CDR VAN PEENEN: We find this in a varied number of cases among the Marines. It takes about two days to pick out the gonococcal colonies, replate, and run a sensitivity test, we have found no penicillin resistant strain of gonococcus, but have found these dual infections.

COL RODGERS: It is all very well to give daily treatment to soldiers in Saigon and Vung Tau. Most of the soldiers in the field are patrolling, ambushing, etc. What do you give in the field for gonorrhea - go around with 2.4 million units of penicillin and give it to him every two days? Everybody in our field units gets one shot and then tetracycline.

CAPT GARDNER: We handle it in two days. One of our doctors gives 4.2 million units of procaine penicillin on day one. He claims he has never had a recurrence. Others, give penicillin, 1.2 million units, and tetracycline along with it. We have to keep soldiers in the field.

LT COLONEL BLOHM: My response to giving drugs to soldiers in the field is that it is not impossible to give penicillin in the field. Nor can you expect soldiers to take tetracycline four times a day on his own or be given by an aidman four times for 3 days while in the field. We are deluding ourselves if we think this is assures adequate treatment more than a once/day treatment by penicillin injection.



"CHARLEY"

"DE FOX"

SANITARY ENGINEERING PROBLEMS IN VIETNAM

By: Captain William Lamb, MSC

This morning we are going to discuss two aspects of environmental sanitation. First, I will discuss some of the current trends in environmental sanitation and what is programmed for development in-country, with a review of the current findings in environmental sanitation practices. Captain Gensler, the sanitary engineer with the 20th Preventive Medicine Unit will then give data on some current practices. In this portion we will try to show how practices go in reverse, from a good operation to a poor operation. Then as a contrast how, when good command emphasis is placed on a problem, they go from poor to satisfactory.

Let's discuss then, some of the current trends. First of all, water supply. With the capabilities of the 20th Preventive Medicine Unit, we are now starting to obtain water quality data, which is essential for me, as the USARV Sanitary Engineer, and the sanitary engineers in the preventive medicine unit to make recommendations for the minimum treatment requirements of each water supply. Captain Gensler and his people are obtaining chemical and bacteriological data on water, both during the wet and dry season. Based on this data we will make a professional determination about the minimum treatment for water using the US Public Health Service standards as much as possible. Based on this data, we hope to be able to provide your units with an adequate supply of water, enough water for human consumption and in the near future enough potable water for personal hygiene.

The Corps of Engineers, through the 18th Engineer Brigade, coordinating their work with the USARV Engineers and me are starting to develop various types of water sources. They presently have well drilling capabilities in-country. In addition, surface sources are being examined to determine the necessary amount of treatment and adequacy of water supply during periods of low flow. Some of you may think this is a lot of engineering just for water supply, but there are units that are crying for water in this climate. We have problems when we can't even provide potable water for our combat maneuver elements while on missions, because they cannot carry their organic water treatment units to the field.

Another trend in water supply is storage. Present plans are to provide a minimum of one-half days storage of either raw or treated water. The reason for this is to provide sufficient water during periods of high demand and during periods of breakdown of water treatment systems. In the Delta area we have the additional problem of brackish water. What are you going to do with brackish water having a salt content of one thousand parts per million or more? We may have to go to deep wells or shallow water sources. We may have to use runoff and catch basins, and provide adequate storage. This is why the engineers are planning for storage.

As far as waste disposal is concerned you realize that there are tremendous problems. Some of your units are using so-called sanitary fills. I haven't seen a sanitary fill in-country that I would call sanitary. They are basically open dumps. This problem is now being alleviated with equipment such as bulldozers being made available to units operating sanitary fills. This office recommends the burn and fill method; burn everything that is combustible in a pit, and then cover it up. This discourages scavenging and reduces the amount of material that has to be buried. When you consider the amount of rubbish and garbage that is generated within an Infantry Division in one day, you realize what a tremendous area is required to bury it. Ultimately the Engineers hope to provide incinerators to handle this waste.

Burnout latrines, as mentioned previously, are the most acceptable means for disposing of human waste. Because of high water tables in the majority of areas where our base camps are located, these are the only type of latrine that are suitable. We do have water supplies in certain areas that are not contaminated. Let's try to keep these water supplies from becoming contaminated by using burnout latrines. They eliminate redigging new pits after three or four weeks and closing the old ones with two foot of earth and marking then. We reduce the volume to an ash. Every bit of the organic material is burned away, leaving only a small amount of material to dispose of.

How many of you know the difference between a urinal and a urinoil? Both are used for the same purpose - collection and disposed of liquid human waste. The urinoil uses the principle of the difference in specific gravity between oil and urine. Urine being heavier will settle to the bottom of the container. Then because of the weight of oil above it, the urine will pass through the pipe system and into soakage pit. This type of urine disposal device, if properly constructed and maintained, will eliminate both odors and fly problems associated with disposal of liquid human waste.

MAJ BASHAW: The Flight Surgeon's Manual in the Air Force has been changed. We can now put a urinoil right inside the billet area inside the building.

CAPT LAMB: This is excellent. I agree with this.

In the area of bathing facilities I will only make this comment. It is better to provide water of any quality in the appropriate quantity so that our people can bathe. Let's not wait for potable water. We need a sufficient volume of water to enable the men to bathe adequately and frequently. I think many of the problems of skin infections and other personal hygiene problems can be eliminated with the provisions of adequate amounts of water for bathing. Potable water is ideal, but not a necessity.

I can only agree with some of the comments made yesterday pertaining to mess supervision. Most of the mess halls I have seen have been poorly operated. I think there are too many people in the Army today that believe the only way to set up a base camp is in a permanent type of installation. I disagree. During World War II we had mess halls that operated in mud. We do not have to have beautiful air conditioned facilities for a mess hall. It is not necessary. This is a combat zone. We are providing our troops the best food in the world. If some little supervision over the mess personnel and the local help working in the mess was provided, I think the majority of the problems in mess sanitation could be eliminated.

The last item is that of refrigeration. Refrigeration is scarce in-country because of electric power shortages. We have to do with what refrigeration we have. In the near future when power availability is increased, more refrigeration will become available to each unit.

This is the broad range of the projected increases that we are going to have in environmental sanitation.

Figure 7: Sanitary Fill?

ENTOMOLOGICAL ASPECTS OF PREVENTIVE MEDICINE

By: Major James Willman, MSC

During the last several months the entomology staff in-country has more than doubled. There are now seven entomologists in the 20th and other units such as the 9th Medical Laboratory, and the 61st and 926th Medical Deatchments. We have all the capabilities of military entomology stateside at your disposal. The PM unit has a survey section, (one officer, ten enlisted men) and three control sections, (one officer entomologist and three enlisted men each). From the 20th Pvnt Med Unit and its detachments we have formed a new entity, the General Processing Laboratory, which is housed with the Walter Reed group. This activity receives all specimens from Vietnam. It does the identifications, puts aside specimens for reference, contributes to the Vietnamese collection through Dr Quy, and also sends specimens back to Walter Reed and/or the US National Museum.

At this time all the entomologists coming here are receiving a two week course at Walter Reed; one week on the identification of the mosquitoes of South East Asis, and another week on laboratory techniques and field techniques specifically oriented towards malaria and scrub typhus.

Dengue, as long as we are not operating in a beachhead type operation, is not expected to be a great problem, although I believe there is more dengue occurring in our troops than is recognized. Scrub typhus has occurred, but at present it is no problem. We have collected mites and identified suitable vectors in Vietnam. This is a most time consuming and arduous task. Malaria is a sad story. We believe we know the major vectors. We have yet to collect a single infected adult. We do not know for sure what species are transmitting malaria to our troops in Vietnam. Until such time as we do know, mosquito control will be, as it is now, a shotgun technique of broad-casting insecticides. Chemical control is often a weak control measure. The individual protective measures are not being emphasized. There is not the command emphasis that we need nor the troop education. Field sanitation teams are not effectively used. As an example, in Lai Khe I visited a rubber plantation. I would hate to guess how many thousands of poroelain soup bowl shaped cups hang on the trees, each and every one of them breeding 200 or more mosquitoes. The command was screaming for aerial spray. Aerial spray is not the magic cure. They had within their own means a method of decreasing their mosquito population by 90 percent - yet they could not, or would not, see the solution. This is what field sanitation teams are for-not for just burning out pail latrines.

Here in Saigon and in other areas the troops come to outdoor movies wearing shower clods and a pair of shorts with a six pack of beer, to sit, drink, watch and get bitten. Malaria prophylaxis leaves much to be desired. Our engineers are building corrugated steel roofed huts all over Vietnam. A mosquito upon flying against a wall, flies diagonally and up.

When it hits the eaves overhang it is in a trap - a man made trap. It will not fly back down, but will continue to go diagonally and up. This is a fixed behavior pattern. Many of our buildings are constructed in such a manner that we channel mosquitoes into them. The field sanitation teams could be mosquito proofing, eliminating breeding sites, spraying the areas, etc. We are not getting to the right people. Whether we need posters or whether we need more command directives, or more command visits, I am uncertain. We've got to do something - and soon.

One civilian firm has a very broad multi-million dollar contract for controlling insects and rodents on many of our compounds. I personally think we have been lulled into believing that control is being done. The firm, in my opinion, has yet to staff any area with enough men to do the job - they appear to sit back and say, "We don't have the personnel or the supplies", to excuse their inadequacies. This program is presently being thoroughly reviewed by Captain Young of our unit. I would much rather see a few areas staffed fully and see if they can earn their contract. If not, then other arrangements should be made.

Area surgeons are not creating their own inspection teams. There is a reliance upon the PM unit to provide routine sanitary inspections. This is not the normal mission of a PM unit or a PM detachment. This is something that should be done by local personnel under the local surgeon's supervision. We cannot do the broad range of control that Captain Gensler, Captain Lamb, and I have been speaking about if we are to do routine unit level work. We are short of preventive medicine technicians, critically short, and this is impeding our activities. An entomological survey is dirty dangerous work. It therefore will not amaze you to know how quickly the technicians become proficient in water point, mess hall and sanitation inspections instead of getting out and looking for the insect vector problems. The young men we are breaking in - and we are getting an excellent group from Fort Sam - will be different. Equipment is still in short supply, but the prospects are bright.

Air spray is now being looked upon as the wonder treatment for a Field Army. I am going to spend the rest of my time on air spray, but we must remember that individual protective measures are the backbone of malaria control. About the 10th or 12th of April we received our first equipment prototypes. They have undergone three changes already and they will undergo a great number more, I am sure. The equipment is made to mount on the Army's HU-1B or HU-1D helicopter. Let me back up just a bit and explain a bit about application of insecticides. Roughly there are three ways to get insecticide to an insect or to an object. The old orchard spray - employing a nozzle and a big stream of water - involves high pressure; high volume. You deliver an awful lot of water at comparatively low speed - it takes tremendous pressure, and is completely inadequate for helicopter spraying. Another delivery method is low

volume, high wind speed - this is typical of the Mity Mite duster when used as a sprayer. Using the air moving at a hundred or more miles per hour you introduce small liquid droplets into the air stream that are then carried in a fast moving stream of air to the point of deposition. The third means is a low pressure, low wind speed, but a tremendous volume of wind. This we have in the helicopter spraying. Fixed wing aircraft can only use gravitational force for the deposition of insecticides. A helicopter such as the H-13 helicopter each minute moves about five million cubic feet of air. This is about 38,000 pounds of air. The swath from the rotor of the helicopter in forward flight trails out behind the craft. The spray booms extend beneath the helicopter. If you position the spray boom below the rotor and directly beneath it, and the craft is flying 60 miles per hour, depending upon droplet size you get a predisposition of your droplets in the air. If the droplets are too big they will fall too far and not be effected by the rotor swath.

Droplets in still air fall under the influenoe of gravity. A 400 micron droplet will fall ten feet in 7/10 seconds while a 50 micron droplet will require 41 seconds to fall ten feet. The positioning of the spray boom and droplet size control is very important if desirable results are to be obtained.

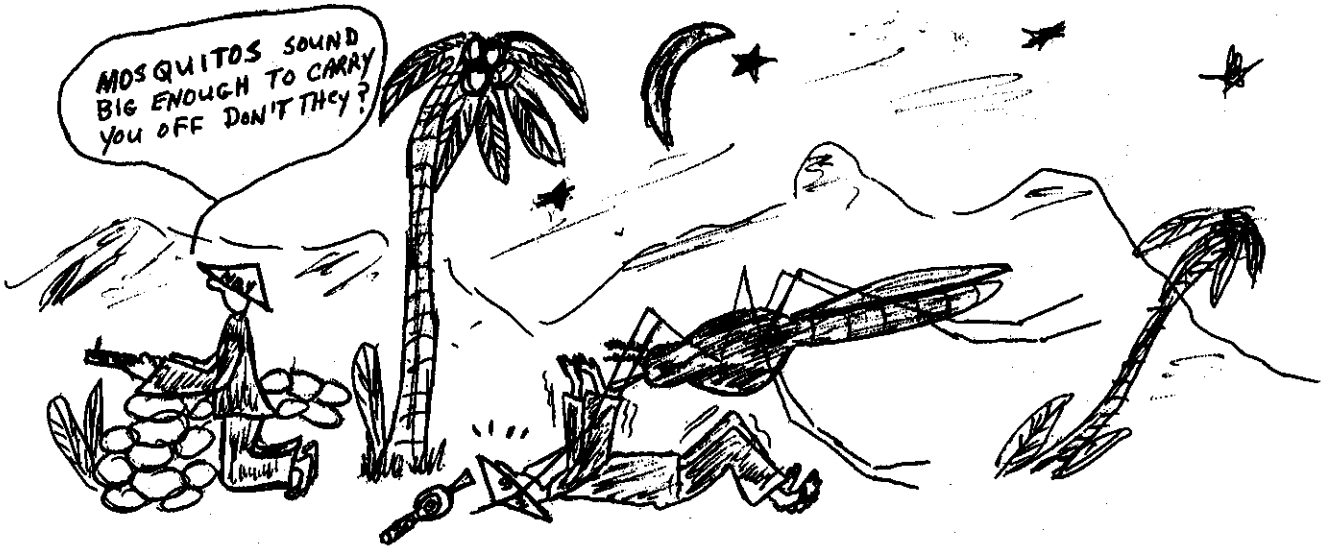
Spray droplet size is also important for proper deposition. Droplets which are too small fail to settle. There is a different optimum particle size for deposition on each type of foliege. Droplets travelling at 50 mph will impinge as follows:

24 Micron and up on leaves 3" wide.
16 Micron and up on leaves 2" wide.
11 Micron and up on leaves ½" wide.

Visualize a slow moving helicopter spraying a fine mist (10 - 50 micron size) into a forest of broad leafed trees. An observer watching would see the trees completely enshrouded with spray. It is actually dramatic in appearance. Excellent coverage is anticipated, but only a small amount actually is deposited. This is due to the use of too small a particle size for efficient deposition. However, if the trees were of the needle bearing variety excellent coverage would occur. The point to be stressed is that there is a different optimum size particle or range of particle sizes for deposition in different types of foliage. The helicopter spray rig as well as all other spray rigs must be tailored to meet the situation. We cannot simply hang a spray boom under a craft and expect control.

The helicopter spray equipment at our disposal consists of a 195 gallon fiber glass reservoir. A windmill pump provides sufficient spray pressure to the nozzles. Spray booms extend on each side of the helicopter for total length of 32 feet 2 inches. Nozzles oan be positioned at 4 inch intervals.

Application rates can be varied to as low as two ounces of spray per acre. Our current applications use malathion insecticide (57 percent) applied at the rate of 0.318 pounds of technical ingredient per acre. Good control has been obtained in areas surrounded by secondary jungle growth when the area of treatment was two miles in diameter. Smaller areas and denser vegetation result in poorer controls. There is a great need for further evaluation of this equipment in jungle type vegetation.



"CHARLEY"

"DE FOX"

ENVIRONMENTAL SANITATION

By: Captain Jay Gensler, MSC

For those of you who are not familiar with the Environmental Sanitation Branch of the 20th, I would like to list several of the capabilities we have in our unit.

We have the capability of giving field sanitation team training. We will come to your area, and bring lectures, films, practical demonstrations, etc. We will talk about mess hall inspections, rat bait preparation and distribution, venomous snake identification, etc. We will bring live snakes and present a demonstration. We have had some problems with that in the past. In Cam Ranh Bay one day, Sp4 Camden-Main put his nice looking carrying case full of snakes in a sleeping area while he was taking care of other matters. When he came back the nice looking case was gone, and he has been wondering ever since what happened when whoever took that case opened it!

If you run into a problem with microwaves or x-ray overexposure or suspected overexposure, and would like some technical data on the probable exposure dose or rate, please give us a call. In the past four months we have had two reports or suspected microwave overexposure. The first arose because of low sperm count among some MPs and the second due to possible cataract formation. I believe I pretty well convinced the MPs that their problem was due to either to jockey shorts or extra curricular activities, both of which will give a low sperm count. If you are worried about salt water intrusion in to your water supply, or the possibility that chemicals may be causing some of the diarrhea in your unit, we will perform a chemical analysis for you.

If you are considering septic tanks for water born sewage disposal, a few hours spent giving you area a percolation test and a drainage check can save you many hours of headaches and overflowing septic tanks. Some people have dug a pit, put in a little tile field, run the thing for about two weeks and suddenly raw sewage began coming out of the top. Ground will only take so much water. Septic tanks are fine, but look at the situation first.

A beach survey will tell you the water quality, what pollution problems you face, whether ships are dumping raw sewage in the area, etc. We will dive and check the bottom, and let you know if you have snags on the bottom, or a nice soil, or whatever. We will check on the presence of an undertow, or other safety hazards.

Unless you are on your toes like the 3rd Brigade of the 25th, (a real jewel) you are probably sitting on top of a time bomb. I'm referring to your sanitary fill, or your dump. In visits to some units, we have taken everything from live hand grenades to condemned rations from scavangers. Perhaps your fill is far enough outside your base camp area so that the swarms of rats and flies don't bother you, and if a couple of hand grenades

go off you are not too worried because your men aren't there. Vietnamese epidemics or deaths traced to a fill, or to materials disposed of through the fill, are not things that we want to happen. With the wide variations in situation and topography, a sanitary fill has to be tailor-made for a unit. We will be glad to survey your area and help you as much as possible - believe me, if we can look at something before you get in trouble and start yelling for help, we reduce our own problems.

Let me now turn to a slide review of good and bad approaches to the problem. (Showed slides of water points, sewage systems, sanitary fills, and dumps for the remainder of the presentation.)

DR STOCKARD: Not long ago there was an epidemic of cholera which was thought to be due to the sewage coming from the civilian hospital. All of the cases were a short distance down stream.

Figure 8: Sanitary? Fill.

PREVENTIVE MEDICINE IN THE TROPIC LIGHTNING DIVISION

- PLEIKU -

By: Captain William Gardner, MC

I am from the part of the Division situated at Pleiku. We have been in-country six full months at present, so we aren't new to the country. I am indebted to the 1st Cavalry Division for bringing a map today, since we are closely associated in many of our operations. The brigade started operations on the 1st of February, but really launched into its first full operation, Garfield, on the 25th of February. We started in Ban Me Thout. From that time we have been moving to the north, and we have operated all the way up to the Dak Sut Valley on the Laotian border. Our area of operation has been mainly along the Cambodian border. On our first operation, Garfield, we went through the Ewal Rubber Plantation, up to the plains, and ended by joining the 1st Cav in operation Lincoln. We operated with two separate battalions, one in the area of the Ia Drang Valley and the other to the East. We came out with a total of 68 cases of malaria. Malaria discipline within the brigade is a hundred percent. Men of all battalions take their pills religiously. Men sleep under mosquito netting, or if they cannot, in head nets. We have at the present time seven battalions within the brigade when you put all the little units together. The Artillery battalion which supports the Infantry units, has has one case of malaria since being in-country. They are required to use mosquito nets at night.

We are presently on Operation Paul Revere, we have been 47 days in the field, and it looks like we will be another 60 or 120 days in the field. Our positions at the present time are right in the Ia Drang - Chu Pong area along the Cambodian border. We have some units of the 1st Cav operating with us under the 3rd Brigade Task Force. We had heavy VC contact the end of May. So far, on Operation Paul Revere we have had 25 cases of malaria from the 3rd Brigade. We are operating with three Infantry battalions, one tank battalion, one cavalry troop and one artillery battalion, plus the supporting elements of the brigade trains. We do have a large population exposed. The brigade was put on DDS as of 10 May. I would have preferred going to the field without DDS because I think malaria discipline has a lot more to do with the prevention of malaria, although I don't think that anybody will question that DDS is effective. I think that our statistics show that there is something working for us among the chloroquine-primaquine pills, DDS, and malaria discipline. We have had aerial spraying only twice. The first time was in conjunction with the 1st Air Cav when the 2nd Brigade moved into the area. The second time was about one week after, and was only the Brigade base area.

One of our major problems since being in-country was on Operation Garfield. We were moved from Pleiku to Ban Me Thout by C-130. Our erdalator was too big to be carried. There were no diatomaceous earth filters or

small erdalators available. Ban Me Thuot has a city water processing plant. Before we could check the water one battalion took a trailer, did not chlorinate and we had about 30 cases of dysentery from the two battalions using the same water trailer. From then on we batch chlorinated and had no more problem with the water. When we moved to Buon Brian, the only water supply, was a Montagnard spillway consisting of ten pipes with a very small output. We were trying to fly water in also. We collected water in five gallon cans, poured it into the trailer, and batch chlorinated. We had solved one problem but acquired another when we moved on to Duc Co. One company had an E. histolytica carrier - a soldier - working in the kitchen. The result of that was about 60 cases of amoebic dysentery in one company. I have heard that there were one or two liver abcesses from this. Everyone responded initially to diodoquine, tetracycline and chloroquine treatment.

About two to three times a month, even in the field, I go around to each mess hall and make a mess hall inspection. Even under field conditions of moving every two to three weeks mess halls sanitation is good. We have those good old-fashioned mess sergeants, with a great deal of initiative and concern.

We have used only the burn out barrel latrines since we have been in-country, with excellent results.

We have had one case of hepatitis within the brigade since we arrived in-country. Our brigade hs been in the field most of the time and we have very little contact with food from the local economy. We have had signal and artillery units attached to us which have had four cases of hepatitis. These people are stationed in Nha Trang or Qui Nhon from time to time, so they are exposed to the local economy.

At present in the area of operations, there is approximately a foot of water on the ground all time. Immersion foot was considered to be one of the problems we should expect. We gave a great deal of thought to ways of combating this problem - there are not many. We came up with the idea that each night we would send in dry socks with the resupply missions, and the dirty, wet socks are brought back in, rewashed, dried and sent back out the next night. It is true that the minute the men put the clean socks on and put their shoes back on, their feet are wet again but at least they have clean socks. We have had only four cases of immersion foot - none of these very serious.

At our base camp area we are starting to experience some problems. When we first moved to the area we tried to find rodents, and were unable to. Now they have started moving into the area.

We have no problem with VD with the field troops. We have been in base camp less than ten days between the last three operations. These men really don't have time. With the base camp supporting troops we have an awful problem. Pleiku has a venereal disease control program which works real nice until visiting units come through from the east and bring their "Disneyland East" disease to a "Disneyland West".

Non-potable ice is not really a problem. The men came over not expecting to have potable ice. We allow them to buy the ice on the local economy to cool canned drinks and have had no problems with this.

Our shower points are strictly quartermaster shower units thrown down in a local rice paddy stream. We have not had a significant amount of skin infectiou, otitis media, or diarrhea. The VC that we have captured have been mostly the North Vietnamese Army. They give reports of heavy malaria infection, of fifteen to ninety percent of their units having malaria at any one time. They have a hard three months getting down here. They are good fighters, but they lose a lot of their will to fight on the long trip down.

Questions and Comments:

Q. Do you employ indigenous personnel in your base camp?

CAPT GARDNER: We have only about fifteen Vietnamese who are allowed inside our compound. These are all R&U people, and are fairly well cleared when they come into the area. We have no local population in any of our mess halls. It is all Army KP personnel.

Q. What is your experience with FUO's?

CAPT GARDNER: In this past month since we have been in Operation Paul Revere, around 50 cases of FUO's. We have seen a syndrome we call a dengue-like fever. These men come in with 103°, 104°, even 105°F temperatures, with pain behind their eyes, myalgia, and backaches. They all seem to get better. They have negative malaria smears. We put them to bed, give them intravenous fluids, and in two days or three days they are back to duty.

Q. Do you have any need for convalescence for these men?

CAPT GARDNER: No, sir, we certainly don't.

Q. Do you run into any rashes with any of these fevers?

CAPT GARDNER: Very few. We may have seen one or two that have cleared pretty quickly and we couldn't exactly decide whether the rash was before the illness or whether it was coincidental.

Q. Have you encountered any hookworm?

CAPT GARDNER: No. This is interesting because I talked to the Surgeon of the 1st Cav and they have had hookworm. They have not seen any amoebiasis. On every patient with diarrhea we do a stool. We have two excellent lab technicians. The doctor looks at every stool after they have been screened by the lab technicians. We have yet to find one case of hookworm.

Q. One last thing. Jungle boots seems to be pretty good over here. What is your reaction?

CAPT GARDNER: We haven't had any problems with the jungle boots. The only "problem" is that after a week or two they wear out. The Quartermaster people can't figure out why, but I think its because they are in constant water all the time.

I would like to say we have found it of great benefit to bring poncho liners out to the troops. We have a hard time trying to keep warm because we are in a very cold climate. You can sleep under a blanket or two blankets and still be cold on some nights. This gets bad for the men out forward. So we got poncho liners for the men. They put these inside the poncho and it worked out well. They dry easily, give a maximum amout of heat to the body, are a tremendous asset for mobility, and prevent having to send blankets, sleeping bags, and other things along.

Q. I m glad you mentioned blankets. Has the Army got any facilities for cleaning or washing or sterilizing blankets?

CAPT GARDNER: We have a Quartermaster laundry with the companies out in the field at this time. They take the men's laundry, and blankets. We have blankets done up fresh daily. We only have one man use the blanket, then they are washed and sent back. At the present time we have had no problems in getting plenty of blankets. There is a good supply of them.

PREVENTIVE MEDICINE IN THE TROPIC LIGHTNING DIVISION

- CU CHI -

By: Captain Wing Chin, MC

I represent the 25th Infantry Division (-). Our base camp is about 35 kilometers northwest of Saigon. Our operations are mostly in a relatively flat part of the country. The health of the command has been very good. This may be partly due to our short time in-country. The 2nd Brigade arrived in-country about mid-January. Division Headquarters closed in about the middle of March, and the 1st Brigade arrived about the 1st of May.

As with most units here, one of our problems is venereal disease. We had a venereal disease rate for May of 230 per thousand per annum. Most of the control has been directed to individual counselling; trying to insure that all the men have prophylactics when they go on R&R and on pass. We are now trying to establish a program with the civilian authorities to examine and treat all prostitutes in the Cu Chi area. This is moving slowly because we have to get cooperation from so many people.

We have been very fortunate with respect to malaria, with only two cases of malaria among Division personnel. This is because of the low endemicity in the area. We have had one biting survey done, with one bite every four minutes in our area, in April - the dryest part of the year. Our monsoon season starts about May when we get about eight inches of rain with gradual increases until in August and September there is a maximum of 12 and 13 inches of rain per month. While we have had no problem with malaria, we would like to raise one question with respect to malaria prophylaxis. In the division there are quite a few personnel who are unable to take the chloroquine-primaquine tablet. These people develop a syndrome or myalgia, arthralgia, chills and fever, and they are sent to Evacuation and Field Hospitals. They come back with a diagnosis of being allergic to primaquine. The medical workup states that these patients do not have the enzyme deficiency responsible for hemolytic reactions. These people are returned to duty. As you know, personnel who have G6-PD deficiency receive a P-3 profile and reassignment out of Vietnam. So far we have had no directions or advice from USARV on this kind of patient. These people are returned to duty on chloroquine alone. We would like to raise the question of what this will do towards exporting vivax malaria to the United States.

With respect to gastro-intestinal diseases, we have been fairly fortunate. Our diarrhea disease rates have been 88 for April and 32 per 1000 per annum for May. In April we had an outbreak of Shigellosis. One company in the division had about 70 people get sick with diarrhea over a thirty hour period, with about 30 hospitalized. Nine of these were

evacuated. We cultured Shigella from three of these people. We did an investigation, which was incomplete because the unit went on an operation the next morning. We were only able to do about 31 or 32 food interviews and could not identify the vehicle for the epidemic. But we believe it was a problem caused by non-potable water and non-potable ice.

We have had one case of scrub typhus in the division and no dengue. We have had two confirmed cases of infectious hepatitis so far. Recently we have had five more patients admitted with the diagnosis. Four of these people were from the same unit so gamma globulin prophylaxis was given to about thirty members of the particular unit. We have had no more outbreaks.

With regard to water supply, we have four engineer water supply points each producing about 30,000 gallons of potable water a day. That is not nearly enough water to satisfy all our needs. Our division has solved this problem by permitting units to dig their own wells. Our wells are about 15 to 30 feet deep. The Millipore filter method reveals that this water is fecally contaminated. We require our units to batch chlorinate their water by an engineer formula, which provides eight parts per million of chlorine. We analyzed this water a couple of times and found no chlorine residual but also no bacteria. With respect to other field sanitation practices, we use the burnout latrines, as used by most units here. We find these fairly satisfactory.

Our main problem is getting mess halls to build their grease and soakage pit complexes. Fortunately the division has been having IG inspections, and this has provided a great incentive for the mess halls to build their complexes.

We are still a bit short on billeting. Our division is programming about 42 square feet of living area per individual. We believe this is not quite satisfactory, but it is what we are going to have for awhile.

Our respiratory disease rates have been 16, 19, and 24 per 1000 per annum for the three months since we have been here.

Questions & Comments:

COL JOY: You have had some dengue in the Division. Major Deller, the Chief of Medicine at the 93rd Evacuation Hospital is picking up dengue in your people in his FUO study.

Q. Are they issued to them by Special Services? - Prophylactics I mean.

CAPT CHIN: Yes, some are being issued. This varies by company. Some units give them out at the dispensary, while in other units as the troops get on trucks to go on passes they receive the prophylactics.

Q. What are you making available in the way of prophylactics for the men who go on pass or R&R?

CAPT CHIN: Mechanical prophylactics, condoms.

Q. Do you give out penicillin tablets when they come back and report a contact?

CAPT CHIN: No, we do not do that.

Q. On you hepatitis, you said you immunize all contacts with gamma globulin. Do all your troops have GG before coming to the country?

CAPT CHIN: No, sir. Our gamma globulin is given about four to five weeks after arrival in-country. We went ahead and immunized according to the latest policy from USARV, which advised giving GG to helicopter pilots, maintenance crews, major unit commanders, etc.

Q. Are you using standard plate counts in addition to coliform counts for your water?

CAPT CHIN: No, sir. We just use Milipore filters.

Q. Did I understand you to say that you were encouraging units to dig their own wells?

CAPT CHIN: Yes, sir. We provide about 10 gallons per man per day of potable engineer treated water. For showers and washing of vehicles and things like that the units have to obtain their own water. The units dig their own wells and pump it up. We require them to chlorinate it.

CAPT LAMB: I take it then that the water for human consumption is from your engineer water points, and the water from these wells is used for personal hygiene and other measures. Is this correct?

CAPT CHIN: Only in a limited sense. For personal hygiene, as far as washing and brushing of teeth, potable water is used. For showers the non-potable water is used.

CAPT LAMB: Ten gallons per day is really adequate for drinking and washing your teeth, cooking, and such as this. In fact, FM 5-700 and FM 21-10 both give five gallons. We have doubled this here. I have had quite a discussion with the USARV Engineers on this, and we both agree that a minimum of 50 gallons is desirable, but impractical. We are accepting 10 gallons per day for human consumption, for cooking, brushing of the teeth, and for drinking. Any other water, non-potable we call it, if we can chlorinate five parts per million this is desirable. We don't

want anyone to drink the water. But at least it has given us another degree of treatment to water used for showering. An individual may consume a little shower water when he takes a shower. There are some units in-country getting only one or two gallons of potable water per day. I wish everyone was getting ten gallons of engineer treated water. We would be in fine shape.

MAJ NOWOSIWSKY: The main thing about the gamma globulin problem - and I hope that this is the last time that I talk about gamma globulin - is that we have finally made our stand. The change to the regulation was published on the 21st of this month. It is very short, and I will read it:

"Gamma Globulin for Infectious Hepatitis Control. (1) Administration of gamma globulin will be selective and will be limited to the following:

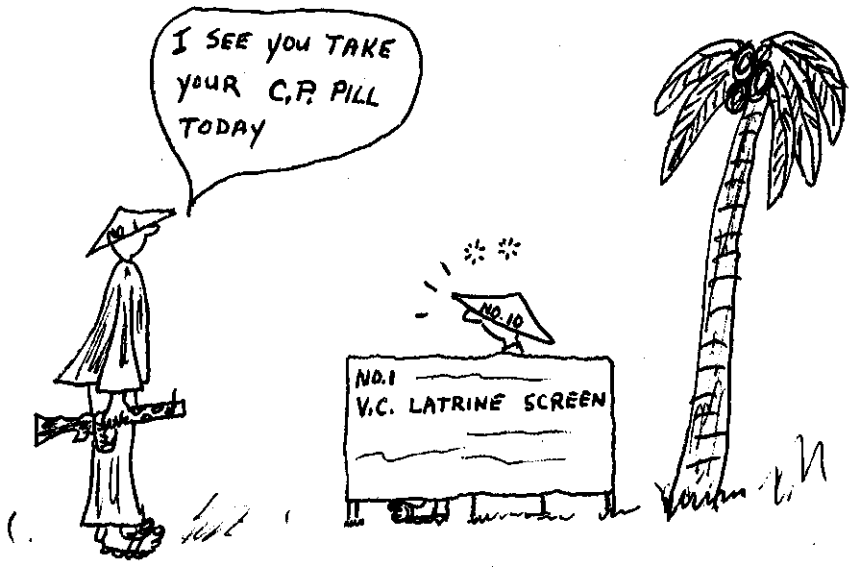
(a) To individuals who are at high risk of exposure to infectious hepatitis. Within the command, as a group, Special Forces personnel qualify in this category and will be administered gamma globulin. Administration of gamma globulin to other groups suspected to be at high risk of exposure, requires prior approval by Surgeon, USARV. In individual cases, this decision will be made by the unit surgeon.

(b) For the control of local outbreaks of infectious hepatitis. Use of gamma globulin for this purpose requires prior coordination with USARV Surgeon."

COL GOUCHENOUR: I would like to comment on the question of the use of gamma globulin. Despite its use in Korea and despite studies conducted in orphanages and in prison populations, there is no sound evidence that gamma globulin even modifies clinical infectious hepatitis, let alone has any prophylactic value. Captain Chin, there is no scientific basis for saying "Yes, I will give gamma globulin", or saying "No, I will not". Too often policy is that you give some lest you be condemned for not giving it.

One thing that you did raise, Captain Chin, in your presentation was the problem of chloroquine-primaquine tablets, and the wisdom of returning men to duty on chloroquine alone. I would say that this decision to return soldiers to duty on chloroquine alone is a practical one and a sane one. If you are worrying about introducing vivax into the United States because people do not take chloroquine-primaquine I can only tell you that we had four cases of vivax in Walter Reed General Hospital where there was absolutely no question as to their taking chloroquine-primaquine.

Remember that the vivax we have here is very similar to the Ghesson vivax of World War II. We can only expect 90 percent radical cure on the 14 days primaquine regimen or the eight pills once a week after return to CONUS. You are going to have about 10 percent failures. The problem here is keeping people in business, keeping them from getting sick from malaria. To me, chloroquine alone for those people who cannot tolerate C-P is a sane and practical recommendation. Historically the combination of chloroquine and primaquine was an administrative combination, not a scientific one.



"CHARLEY"

"DE FOX"

PREVENTIVE MEDICINE IN THE BIG RED ONE

By: Captain John Sosby, MC

The 2nd Brigade of our Division has been here for one year. Division Headquarters, 1st and 3rd Brigades, and Division Artillery arrived in September 1965. The division is spread out over a rather large area. The 2nd Brigade is in an area approximately twenty miles southeast of Bien Hoa. The Division headquarters is approximately ten miles north of Saigon. At the present time we have elements all the way to Loc Ninh, approximately 60 miles north of Saigon.

In general the health of the command has been good. We have been rather fortunate with our malaria experience. We have a total of only 169 cases for the year. Most of these cases have occurred in the Infantry units, with a very infrequent case in headquarters or artillery units which are, of course, more stable. We have had no large scale program of spraying our base camp areas until very recently. We have had aerial spray once for two of our brigade areas. Until recently we had no foggers and I think most of our luck with malaria has been due to personal protective measures and Command interest. Approximately two weeks ago we received a visit from the 20th Preventive Medicine Unit which was stationed with our Div Arty Headquarters in Phu Loi, and we are getting two foggers. We have had no cases of plague, or cholera, and only two cases of hepatitis. The biggest problem has been, and continues to be basic field sanitation. We had a lot of problems when we first got in-country with such things as our latrines and our mess facilities and troop billeting areas. This has improved considerably now; the mess facilities are all on concrete pads, all of them have permanent buildings, and approximately half of our troop billeting is now in permanent buildings. At the onset, we were using the pit type latrines. Upon the advice of Colonel Ports, the former sanitary engineer, we went to the burnout type latrine. This has worked far more satisfactorily than the pit type.

With the coming of this monsoon season, we are moving out in brigade sized units, and again our field sanitation is becoming a problem. At the present time our Headquarters is forward, as are two of our brigades. I have been up there and inspected these places. Adequate sanitation is lacking in a lot of instances. We do have the people up there using mosquito nets, with very strong emphasis on this, and the insect repellent is also used. So far we have had no malaria from these two forward areas, and the troops have been there about three weeks now. We are getting to the point where we will begin to see cases if they are going to occur.

Questions and Comments:

Q. At your base camp are you hiring indigenous personnel?

CAPT SOSBY: Yes, sir, we are. We started last January hiring people as day laborers to fill sandbags and build bunkers, etc. Shortly after that we began hiring workers in the mess halls. We check their stools for parasites, get chest x-rays on all of them and obtain a serology. A serology and a chest x-ray are repeated every six months. Stool specimens are taken every two months for people that are handling food. In addition to that, we are now getting such things as laundries, barber shops, and even a dime store in one area.

Q. How much diarrhea are you having?

CAPT SOSBY: About three weeks ago we had an outbreak of diarrhea at the Di An base camp area. This was in the Administrative Company. Approximately half of the people in this stationary unit had diarrhea. We never did get a positive diagnosis on this. When we investigated, we found that they were using non-potable shower water from a very dirty little stream outside the perimeter. We corrected this situation, and diarrhea stopped. I think we had some poor water discipline there since the showers were not marked as non-potable water and apparently some of these people were drinking this water.

Q. Is there any difference between the diarrhea rate before and after you hired the Vietnamese in the mess hall?

CAPT SOSBY: No, there hasn't been.

Q. Are they engaged in just waiting or food preparation?

CAPT SOSBY: Mostly in just waiting of the tables. There are a few that are cooks.

Q. Would you comment, please, on the FUO's and the VD rate?

CAPT SOSBY: I think, as is true for everybody in-country, that we have a real problem with VD. Around each of our base camp areas little establishments spring up. I have been out to inspect most of these, which are marked restaurants and bars, but they also have an adequate supply of bedrooms in the back. We put several of these off limits. I talked with the district chiefs in these areas to try to discourage this sort of thing, but I doubt if we are going to make any real impression. I have given lectures to people in my area, and the brigade and the battalion surgeons to try to instruct the GI's in preventive medicine.

Q. Do you do a VD interview on every patient?

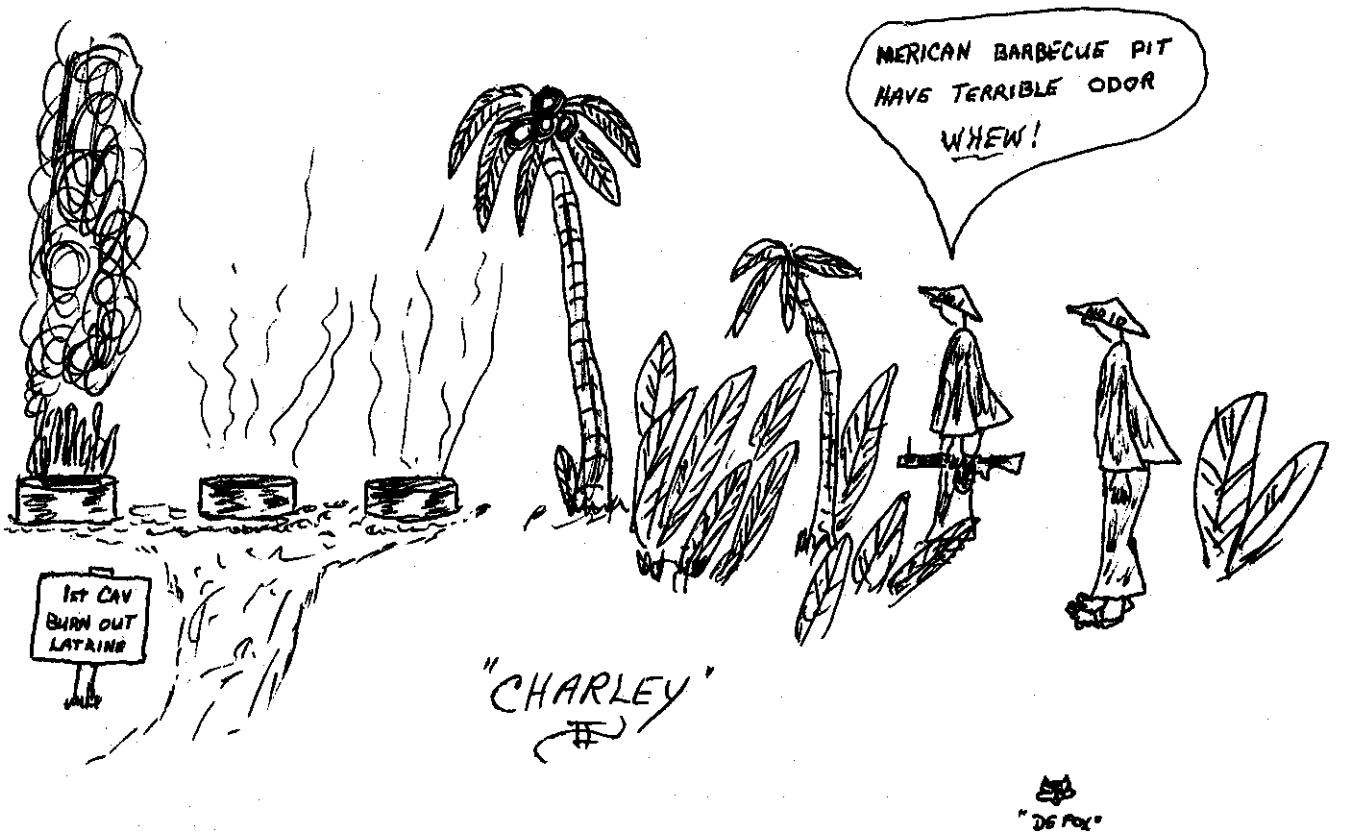
CAPT SOSBY: Yes,,we do. When I see them I usually ask them where

they got it, and I get an answer "Saigon" or "Bangkok" or "Hong Kong". We are getting a lot from the in-country R&R centers also.

MAJ NOWOSIWSKY: Thank you Captain Sosby. I would like to comment on three points. One of these is VD. Very frequently people pay an undue amount of attention to these diseases. Sometimes when VD is spotlighted all sorts of pressures originate, and these in turn may result in the disease being driven underground. And that is precisely what we do not want to happen.

I would like also to make a comment concerning infectious hepatitis. In examining incidence data over a three month period a definite trend has been observed. Support troops were infected over combat troops in a ratio of 4:1. This is quite reasonable since support elements, in general, have an easier access to the food and sin of the local economy.

Captain Sosby, as far as your low malaria rates are concerned I would like to suggest that the primary reason for this is the fact that until now your units have been operating in hypoendemic areas.



PREVENTIVE MEDICINE IN FIRST LOGISTICAL COMMAND

By: Captain Calvin Miura, MC

I represent the units that fall under the 1st Logistical Command, and they are scattered throughout the Republic of Vietnam. The problems that we have encountered during the past year have been the same kind as those found in the combat units. However, the rank order of importance to our command has been different from the combat units. As an example, malaria has not been a major problem for units under the 1st Logistical Command. This is because the support troops are mostly concentrated in major cities in Vietnam and do not ordinarily enter areas where malaria is hyperendemic. During the past five months, we have averaged five cases of malaria per month, in the 25,000 - 28,000 troops throughout the 1st Logistical Command. There has been a concentration of malaria cases from the Bien Hoa - Long Binh area. This has occurred primarily among medical personnel in that area. The 93rd Evacuation Hospital has contributed approximately half of the ten cases that have occurred there in the past months. There is also a medical dispensary that has had malaria in its personnel. Aside from the medical personnel, the number of malaria cases in the support units under 1st Log have been very few and from widely separated areas. We have had several cases in An Khe and a couple of cases in Qui Nhon.

I would say that the major problems we have encountered in 1st Log have been those of basic sanitation. We have had a lot of trouble with potable water. As you know, the people from the Logistical Command have come into the major cities located throughout this country. They have occupied buildings that were here prior to our arrival. We found during the rapid buildup in the last year that we have lost track of all the mess facilities that have been started. We don't have a full count of all the water points that we have to date. There are many sources of water used by troops which we consider non-potable. As an example, we found out last year that one of our transportation companies was picking up water for their ships from two locations. We came across this problem when there was a diarrhea outbreak among the crew members of the ship. They had contacted the 20th Preventive Medicine Unit here and asked for assistance. On investigation it was found that the ship was picking up water from the Saigon port and also from the substation in Nha Be about eleven miles down the Saigon River. At each of these locations we found the water was not being treated or supervised by Army engineers. It was water that had been chlorinated, but had just a trace of chlorine residual. At Nha Be it was less than one part per million. In the water at the Saigon Pier, which is treated city water, the chlorine was equal to zero. Incidents like these keep occurring throughout the command. We don't have any way of knowing that these practices are occurring except when something bad happens and the people involved ask for help.

We have also found through the past year that a number of our mess halls have been using non-potable water for dishwashing. Looking back, I think in September of last year, I think Colonel Joy will remember we had

an ordnance unit, newly arrived in Cam Ranh Bay, set up their mess using the field dishwashing setup and non-potable water. They had, approximately forty or fifty cases or acute gastroenteritis due to Shigella in the course of three days.

This outbreak was traced to the non-potable water in the dishwashing line. We now warn newly arriving units that non-potable water will not be used for dishwashing purposes.

We define potable water as all water that comes from water points supervised by military engineers. The reason for this definition of potable water is the fact that many people just take someone's word for what potable water is. For instance, because it is "treated" city water is considered potable water by some. We do not consider it as potable water because in testing water faucets from different locations throughout the city we know that in the majority of cases there is no chlorine residual at the tap.

The next thing I would like to mention is the use of non-potable ice. We have just recently had reported the use of non-potable ice among 1st Log troops in Vung Tau. I suspect that this is occurring in just about every city in Vietnam. In driving over here from my BOQ I noticed a new ice stand that has cropped up near the 1st Log Headquarters. I saw some troops going over and buying ice from it. As you know, the ice storage facilities and the methods of ice transport aren't the very best here. These are some of the hazards in water and ice that we are encountering.

Another thing I would like to mention is mess halls. Mess halls have been another headache to us. I can say in general that lack of supervision is one of our main problems in mess halls. It seems as if a unit sets up a mess and starts hiring local personnel that they then lose a sense of responsibility for the proper operation of the mess hall.

I have seen this repeatedly, in officers' clubs, enlisted messes, some of the finer BOQ's, and in some of the BEQ's. We find that mess supervisors are not making daily inspections of their mess personnel. You can go into any mess hall today and you will probably see a girl with dirty hands serving your iced tea - or you will notice the waitresses wiping the kitchen utensils. Don't feel that these people have not been told, because they have been told time and time again and still these practices occur. It is not a matter of not having adequate equipment that is often given as an excuse by a lot of people. It is basically a lack of supervision. We have noticed terrible dishwashing procedures in quite a few messes, and have been trying to get some corrective action in that area.

Another problem has been lack of interest in getting mess personnel to get their health certificates. Part of the problem has been that medical facilities were not as readily available as would have been desirable. We had one dispensary in Tan Son Nhut A.B. that was not available to all personnel because not everyone was allowed to enter the Air Base complex. The former Navy hospital in Saigon was not staffed or equipped to perform all the food handler examinations. We have tried to correct the situation by establishing the 17th Field Hospital as a centralized food handler examination facility, for the Saigon - Cholon area. We are getting a much more favorable response from our mess supervisors. They know where to go. They know that within a week's time they can get results, and I think we are improving in that area.

As far as infectious hepatitis is concerned, I must say that we have our share or hepatitis. We have been having an average of about twelve cases a month during the past five months. This is a rate for Logistical Command of six cases per thousand per annum, which is a little higher than the overal USARV rate is running.

Questions & Comments:

Q. Do you have any difficulty with Coca Cola and bottled beer or alcohol?

CAPT MIURA: No, sir. It is my understanding from the veterinary people that just about all the crown capped bottled drinks in Vietnam are approved. They have inspected plants and the quality of the product. I believe that most of these bottled drinks are produced by one or two companies.

Q. Is it true that there is formaldehyde in some of them? We have several cases of what appears to be encephalitis after drinking 33 brand beer.

CAPT MIURA: I don't know the answer on that. I suspect some of this could happen. It could be some illegal stuff going on with people using the brand name bottles to put up home brew.

Q. Does the Army have a laboratory that can perform chemical analysis?

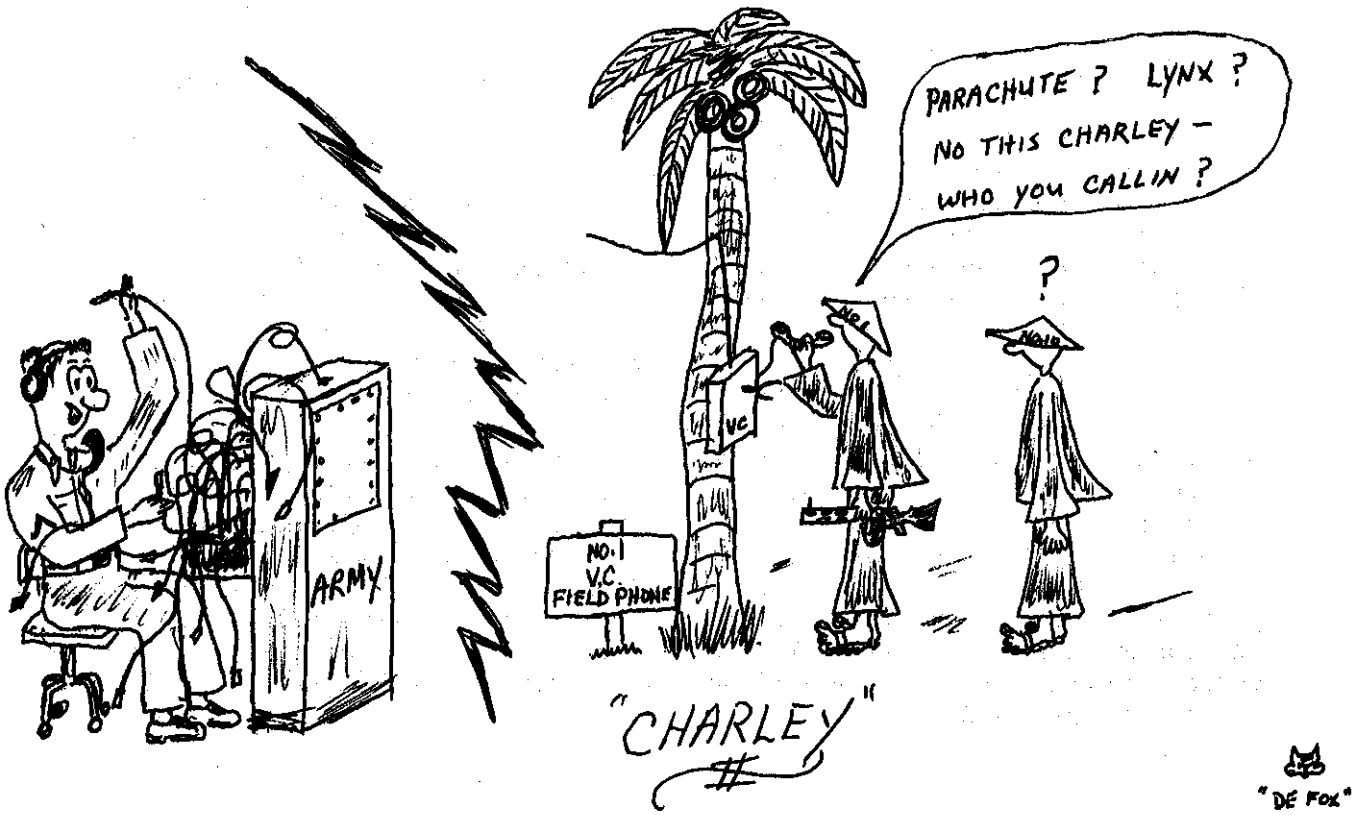
CAPT LAMB: The 9th Field Laboratory, once they get into operation, will have this capability. But until now, we have been forwarding everything for chemical analysis to Camp Zama to the 406th Laboratory.

COL JOY: I would like to make a comment on one of Captain Miura's remarks about mess supervision. In CONUS it was decided that it was cheaper to hire civilian mess supervisors. The MOS and grade structure

of the old fashioned, well trained, conscientious mess sergeant became upset. Then when we have to ship a Field Army overseas, we discover our lack of trained NCO people. I hope that USARV and the other overseas commands can advise that the MOS and job opportunities be reorganized in CONUS so we will have the World War II mess sergeant again.

MAJ NOWOSIWSKY: Thank you Captain Miura. As concerns the medical supervision of civilian food handlers, in USARV this program is now well underway. Since the opening of a new centralized medical examination facility in Saigon, the medical surveillance of these people here has improved considerably. Examination facilities similar to the one in Saigon are now being planned for other major Army centers in Vietnam.

Now a few words about the necessity, or even the advisability, or stool examination for parasites. I would like to submit that results of this particular examination are primarily of academic interest. The identification or even treatment of carriers will not significantly reduce the potential for spread of enteric infections. After duty hours these food handlers return to their families and their native environment. Thus, even if treated it is only a question of time until their guts repopulate. On the other hand I would like to suggest that the single most effective measure in controlling the potential for spread of enteric infections is to "sanitize" the vehicle - the food handler's hand. Since our culture discourages peeping into ladies' and men's rooms and since the sanitary habits of these food handlers are very often quite deficient, there is one control measure which can easily be accomplished - to bring the handwashing part out into the open where it can be observed, inspected and controlled.



RABIES PREVENTION IN THE MARINES

By: Lt Comdr P. F. D. Van Peenen
OIC, G-18 PMU, Naval Support Activity, I Corps

I am from the Navy Preventive Medicine Unit in Da Nang. I would like to thank you for inviting me into the midst of the enemy. I have never seen so many Army people all at one time. There is another force in Vietnam, although many of you may not have heard of them. These are the US Marines up North. You need a passport to get up there, but we would like to see any of you that can make it and show you how the other side lives.

We have three main areas of concern, Da Nang, Phu Bai, and Chu Lai. There are other scattered installations in I Corps which have Army, Air Force, or Special Forces personnel. These are very small and they have very few public health problems.

Our big problem in I Corps is the same as yours down here. It is malaria. Most of our malaria control is the same type you use. I'll go through a few facts and figures later on. We also share practically every other problem that you brought up this morning; that is basic sanitation.

If you don't mind, Colonel Champlain, questions that pertain to the Chu Lai area I will pass on to two people who came down to protect me, Commander McGreevy, the Division surgeon of the 1st Marine Division, and Commander Eisman who is the Preventive Medicine Officer for the 1st Marine Division. My Navy Preventive Medicine Unit in Da Nang corresponds to Major Cataldo's unit. We cover the entire corps. The real work is done by the divisions themselves. Instead of running through our problems and repeating what you have said, I would like to bring up one or two things that I think were omitted, then throw the floor open for questioning.

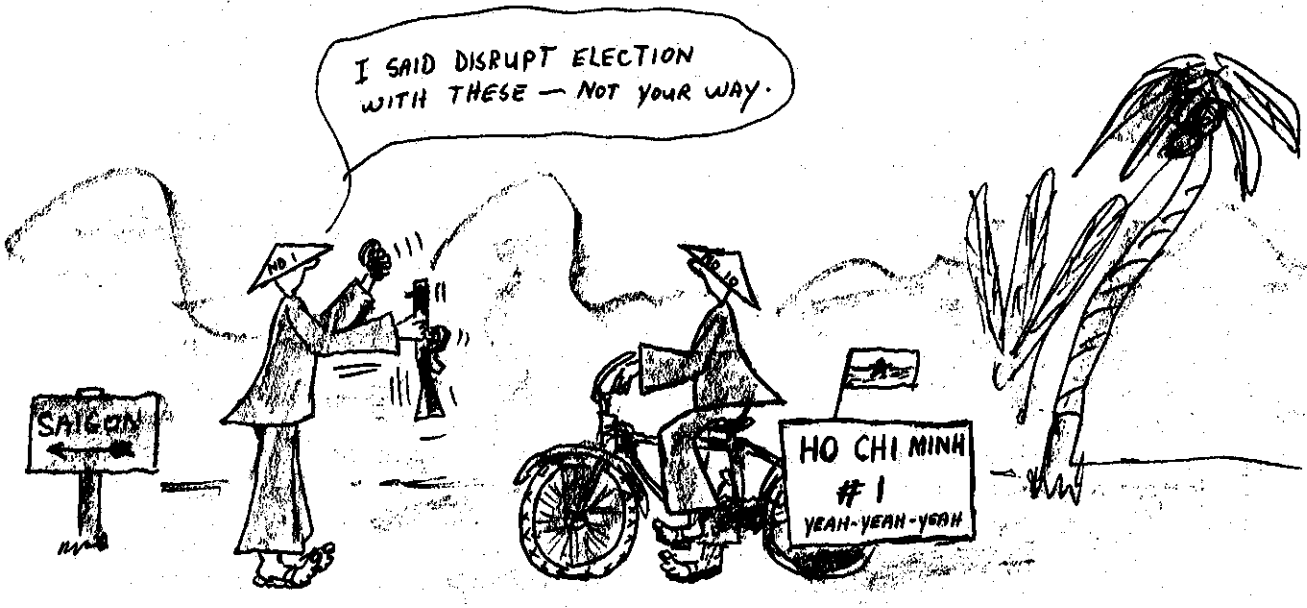
It surprised me that rabies wasn't mentioned this morning. We have had a very bad time with rabies in I Corps. One of the few unique services that my lab provides is rabies diagnosis. There has been one sad experience, in an Air Force man I believe, who developed an encephalitis after the duck embryo vaccine. This is very uncommon. The clinicians told me that it was the fifth such reported case. This patient had been given the duck embryo vaccine because the dog head was sent out of country and wasn't reported as negative until he had twelve doses. We provide faster service than that. If we can get the heads and get them examined immediately we probably wouldn't have reactions like this. Rabies diagnosis is a problem of dog heads. In my lab we do a Celler stain immediately, a fluorescent antibody test which takes overnight fixing, and then inoculate mice if these are negative. I don't have a lot of mice so we don't innoculate mice if the other tests are positive. We have found that 25 percent of heads from animals that have been killed or died after biting someone are positive. We had one classic case I am sure will be written up some day. One dog managed to expose 56 Marines. From that one episode we had eight serum sicknesses cases from anti-serum. It put one whole fire team of 50 men out of commission.

COMMENT: I wonder if you would go ahead with that rabies story a little more? That was very interesting.

LT COMDR VAN PENNAN: Well, I can't take all the credit for it. One of the doctors in the battalion is writing this up. I saw a Marine master sergeant near our lab one day. Now Marine master sergeants are people you don't fool around with, there are not very many of them, and they are pretty tough old customers. I met this fellow with a dog under his arm striding away from the Army Veterinary Office, which is right next to ours. I asked, "Sarge, what is the matter?" He said, "I'm going to General Walt." I said, "Beg your pardon!" He said, "Yeah, they won't give my dog a shot." I said, "There is some misunderstanding. Let's go down and straighten this out. What do you want to give him a shot for?" (You know you can tell Marines to do this sort of thing and they won't do it.) It turned out that he had a reason for wanting to get that dog shot. "Well, he bit the company commander." This was a good reason. The veterinarian told us to confine the dog and watch him, so the sergeant dropped the dog on us. I had this yapping dog in my lab for two days, and then the dog did get sick. I had the company commander come down and get his first shot of duck embryo vaccine. On the second day when the dog was very sick the vet came in and said, "You know, that is pretty interesting. That's dumb rabies. That dog is going to be dead tomorrow, and that is a very dangerous type of rabies." We waited all night and the damn dog died at five o'clock in the morning. I then got in my jeep and went across Da Nang east bridge - as you know it is no mean feat at night just getting across that bridge - to the lab, did a Celler stain and sure enough it was positive, as was the FA the next day. As far as I knew, only the company commander had been bitten. In checking into this, it turned out that a lot more people than the company commander had been exposed. The dog that died had been a mascot of a battalion before the present battalion moved in. He had gone on patrols with them and this made him such a lovable little fellow that when one company left, the dog was adopted by the next one. Marines like to play with dogs. We checked around to see how many people had been bitten or had open sores on their hands. You are already licked right there because all Marines have sores on their hands. The internists said rabies shots should be given to anyone who had handled that dog so we had 35 people exposed. The internist also said that many of these people should receive rabies anti-serum. We gave out 28 doses of anti-serum with 8 cases of acute serum sickness.

That is not the end of the story. It seems that our dead dog had a friend called Lieutenant Clinker. Lieutenant Clinker was a little black dog that had since run away. Lieutenant Clinker had exposed another twelve people. In addition, the dead dog had gotten angry and bitten Bar B Que. Bar B Que was a calf and another mascot. You wouldn't think that this would have any significance but the calf had no mother. The men fed

it with a bottle by ramming the bottle down Bar B Que's throat. In the meanwhile, Bar B Que had been killed and given to the local people, so we couldn't check Bar B Que either. We had to assume that Bar B Que was rabid, so the four Marines that had been feeding Bar B Que had to be treated. One interesting sidelight was one Marine who fed half his canteen of water to the dead dog then drank the other half! I was glad to see the end of this episode. It was awful!



"CHARLEY"

"DE FOX"

Melioidosis

by LTC Raymond W. Blohm
USARV Medical Consultant

Among the diseases peculiar to tropical and Far East lands but extremely infrequent and seldom seen in the U.S. or other northern hemisphere countries is Melioidosis, also known as Whitmore's disease.

During June through August 1966, six confirmed cases have been experienced in Vietnam. It is suspected that other cases have occurred but have been unrecognized. Five of the six cases were hospitalized at the 93d Evacuation Hospital in Long Binh, with four of the five cases from the Cu Chi area and the fifth from the Bien Hoa - Long Binh area. The sixth case is a solitary one from up-country hospitalized at the 85th Evacuation Hospital in Qui Nhon.

The first four cases at the 93d Evacuation Hospital all expired despite heroic and abundant treatment efforts. The first two cases were not diagnosed antemortem.

The purpose of this article is to acquaint all physicians in Vietnam and in off-shore hospitals that the disease does exist here, and must be considered in the differential diagnosis of many illnesses. Information on the disease follows:

Melioidosis is caused by Pseudomonas pseudomallei, a gram-negative motile rod showing bipolar staining characteristics. It typically forms a wrinkled growth on appropriate media.

The organism is found naturally in nature. Many and various animals and rodents harbor infection and organisms, some without evidence of clinical disease. Animal droppings deposit the organisms in water and mud where man and animals may acquire them. Organisms may survive for long periods in rice fields and on river banks. The route of infection in man is generally uncertain but instances have suggested multiple possible routes by inhalation, ingestion, and by surface contamination of skin abrasions, sores, and open injuries.

Pathology consists of small well defined abscesses with granulomatous changes. The organs and tissues most frequently involved are the skin, lungs, liver, bones, spleen, lymph nodes, kidneys, and may be found anywhere as in most septicemias. It thus in many ways also mimics miliary tuberculosis and similar diseases. Rarely however do the CNS and intestines show abscesses. Congestion is always present about the foci. Necrosis and coalescing lesions producing yellow pus occur. Fistula formation may occur.

The incubation period of the disease has not been established.

The disease may clinically present in several manners. The acute septicemic melioidosis usually occurs with sudden onset of fever, malaise severe toxicity, various myalgias and arthralgias and a presenting severe

pulmonary picture with disseminated opacities which may later consolidate in one or more lobes. Despite considerable cough and dyspnea, sputum may be scanty. A multiform rash may accompany the initial picture. The acute septicemic melioidosis may also have profuse diarrhea of sudden onset, without blood in the stool and without vomiting. Fluid loss may be considerable and lead to dehydration and shock. The acute septicemic form may terminate fatally in a matter of hours or a few days or may continue into a subacute or chronic form.

The subacute pyemic melioidosis may be the continuation of the acute form or develop per se. Continuous, occasionally intermittent, fever is the rule. Clinically, pulmonary complaints and signs of pulmonary infection are seen first, then followed by signs of infections in other areas. Symptoms of pulmonary disease may be variable for several weeks. Cough is intensive but sputum is scanty or absent. Pleurisy is frequent. Auscultation and X-rays suggest variable pictures from lobar pneumonia to bilateral pneumonitis. Cavity formation may be present with the presenting X-ray indistinquishable from pulmonary tuberculosis with cavitation. Pustules resembling varioloid lesions may appear in the skin, followed by superficial abscesses, cellutitis, lymphangitis and lymphadenitis. Abscesses are formin other organs a nd infections may progress into or localize in joints, give peritoneal irritation and produce great diagnostic problems. At this stage disease may terminate in death, become chronic or become arrested.

Chronic melioidosis may be localized or disseminated, with multiple lesions the rule. The clinical picture may resemble tuberculosis and fungal diseases. It may follow the acute or subacute stages of disease or appear insiduously. Fever will be less frequent and the patient less acutely ill. Osteitis, skin ulcers, adenitis, fistula tracts, and deeper abscesses are common. Chronic pneumonitis with or without abscess or cavity formation may be seen. This form may last months to years, sometimes with full recovery, occasionally progressing into a more acute form with fatality, or becoming complicated with secondary infections from staphylococci, gram-neg. bacteria.

Laboratory findings have revealed both leucocytosis and normal white counts. Anemia has been frequently found, and the sedimentation rate is exceedingly high, generally in the range of 40 - 60 mm/hr. Gram stains of sputum and pus from abscesses and pyarthroses may demonstrate the organism. The organisms may be cultured from blood during septicemic stages and from pus. Special glycerol nutrient agar is necessary for subculturing from blood and for the direct inoculation of pus, sputum, pleural fluids, etc. Negative cultures often occur, demanding repeat cultures which may be positive. Confirmation of the organism identification must be obtained by submission of the culture to a reference laboratory. Acute and convalescent or follow-up sera should also be referred to a reference laboratory for pseudomas pseudomallei hemagglutination tests. A single titer of 1:160 is considered significant but a fourfold rise in the agglutination titer of serum tested

against Ps. pseudomallei during disease is also practical. Complement fixation tests are also useful but cross reaction's with Actimomyces mallei are common. The presence of low agglutination titers or compliment fixation titers is not diagnostic for the disease, and may be nonspecific, has been seen elevated in typhoid fever and in people with no history of disease.

The prognosis is extremely guarded with fatality rates of 30 - 50% in all melioidosis and up to 90% reported in series of cases of acute septicemic melioidosis. Development of G.I. symptoms and the appearance of shock are ominous signs. Treatment has been and continues difficult. Early recognition and treatment may improve the prognosis. The multitude of treatment regimens recommended in the literature only confirms the inadequacy of therapy. Antibiotic sensitivity studies on positive cultures should guide the antibacterial therapy. Your hand is often forced in the acute septicemic patient with severe bilateral pneumonitis who could have melioidosis, staph. septicemia and pneumonia, Klebsiella or streptococcal, pneumonia, tuberculosis or fungal disease, and appears to be going downhill, toxic, and dying. The literature and experience would dictate massive aqueons penicillin dosage (20 - 40 million units/day), streptomycin or kanamycin (2.0 grams/day), and chloromycetin (up to 6.0 grams/day) by intravenous route. Keflin in doses of 12.0 grams/day I.V. or I.M. and colymycin 4 - 5 mg/kg of wt daily I.M. only may be appropriately substituted for previous drugs but no experience is available with them in melioidosis. After sensitivity tests are available, antibiotic treatment will be gauged by them, by repeated sensitivity testing, and always by clinical response, regardless of in vitro testing results.

In melioidosis, response to therapy is not rapid as with most bacterial infections, and one should not change or stop drugs because of inapparent or little response after one or two days of treatment. There is a decided lag between treatment and response, and this must be appreciated. Series of cases in the past have done best on chloromycetin after given for many months.

In summary, melioidosis is a rare disease but a serious one. It has been seen in American servicemen in Vietnam with a high mortality rate. It can be manifested in many ways and be a diagnostic problem. Early diagnosis and treatment should improve the prognosis as with all bacterial diseases. Consideration of the diagnosis in all unusual and seriously ill patients must be given by our physicians.

NEW CONCEPTS IN MEDICAL EVACUATION

By: Major Russel W. Van Norman

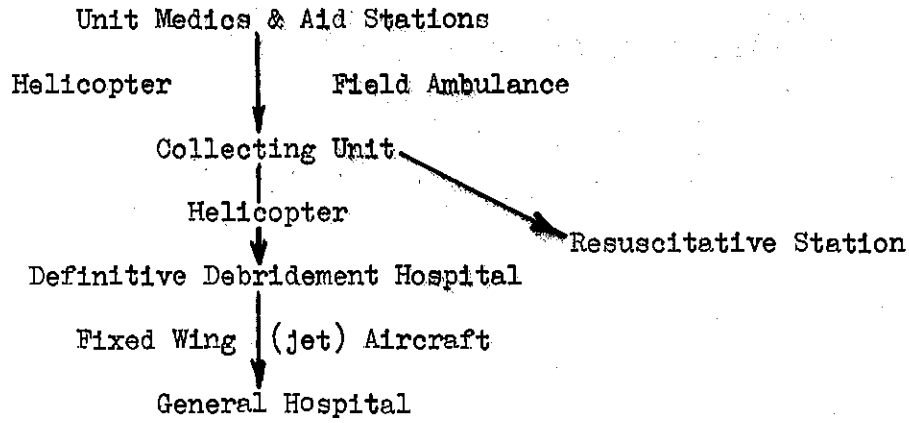
The U.S. Army Medical Evacuation Chain has changed little since its inception in World War I. The Mobile Army Surgical Hospital instituted during the Korean Conflict is only a modification of certain hospitals existent in World War I and II. However, since World War II an entirely new concept in mobility has evolved: medical evacuation by helicopter. The exception during Korea has proved to be the means in this conflict with few freshly wounded troops being transported by surface vehicles.

The helicopter in my opinion has led to the obsolescence of the present TO&E Medical Evacuation chain. This is not an isolated opinion but is born out in "bull-sessions", in the experiments attaching surgical teams to Clearing Companies and as illustrated by the "two-in-one surgical hospital concept" discussed by Lt Col F. C. Dimond in his article "The Mobile Surgical Hospital in Vietnam" (USARV Medical Newsletter 1:5, June-July 1966).

It has been said that this is a "unique" war and unlike any we would face in other portions of the World, especially Europe. Yet, it's the "only War we've got" and this experience must be used to modify the evacuation chain established two army reorganizations ago and last tried in a war settled fourteen years ago.

Patients are admitted ten to fifteen at a time to the Field and Surgical Hospitals during combat operations. Limited numbers of surgeons and anesthetists at these hospitals make it impossible to carry sustained operations more than 24 - 36 hours before manpower exhaustion. On the other hand, the Evacuation Hospital has a large enough staff that personnel can be relieved regularly without seriously limiting the number of cases which can be simultaneously operated.

The need for a resuscitative hospital for the non-transportable patient has been greatly modified by the changing definition of non-transportable. The concept of this type hospital needs to be continued but its scope of patient care changed.



Unit medical care would be unmodified from present concepts. Evacuation to the next level would be by helicopter or surface craft. The new hovercrafts might be suitable as smooth-ride ambulances.

The Collecting Unit would be similar in size to the present Clearing Company and would represent the first true triage point and the first really definitive care by Medical Officers. Here Intravenous Fluid would be started and the priority of patient evacuation established.

The majority of patients would be evacuated by larger helicopter to a hospital similar in size to the present Evacuation Hospital. Here enough personnel would be located that continuous casualty loads could be handled for indefinite periods. Or, for dispersion, two separate units could be controlled by one headquarters with casualty loads received on alternate days. This hospital would have enough holding beds and sufficient rehabilitation facilities that patients could be held for the full zone evacuation policy time. Thirty days seems to approach the upper limit of time in which a patient in the sedentary hospital situation will not lose his combat physical trim. Besides the representation of the gamut of surgical specialties, this hospital would be the definitive internal medical service of the zone.

Certain patients even under the present rapid evacuation system are not transportable from the front lines. Consequently, quite near the Collecting Unit should be a Resuscitative Station. There, such necessary minimal operations as tracheostomy and control of hemorrhage could be performed and, conceivably, otherwise mortal injuries as uncontrolled abdominal or thoracic hemorrhage could be operated. The present experimental use of surgical teams augmenting Clearing Companies has shown such non-transportable cases to be few even in large combat operations. Consequently, one or two operating rooms and twenty to thirty beds (a large helicopter's load) in a reasonably clean, sophisticated module as the new inflatable wards would provide the quality of medical care necessary for such critical cases.

From the Definitive Debridement Hospital patients would be evacuated to a Casualty Staging Unit (the second collecting hospital) and thence to final definitive care as offered by the present general hospitals.

Such hospitals as conceived for the Combat Theatre itself would need be more mobile for a changing Front Line situation than in the present Viet Nam situation. However, there is no great time loss in transporting a wounded man fifty or one hundred miles in this present war. Hence, even the concept of mobile must be modified with the advent of helicopter evacuation and air movement of units.

As Japan, Okinawa and the Philippines serve as "COMZ" hospitals for this Theatre, so too could similar hospitals be assigned in England and Africa with a European land war. Evacuation of patients requiring prolonged hospitalization from Europe to the Continental United States should prove no more difficult tham the present sixteen hours from Viet Nam to CONUS. By the mid-1970's a 250 passenger plane with a cruising speed exceeding 1500 miles per hour should be available.

Casualty control and medical regulating of patient load would be well served by a separate radio net exclusive to the medical service. Accurate knowledge of incoming loads of patients would allow proper notification of hospital personnel and preparation of critical supplies in advance. Multiple switchboards and untrustworthy landlines now prevent the rapid dissemination of information which might aid in the optimal care of patients.

At present our whole care of patients is based on fitting the staging of wound care (debridement, modifications, delayed closure and definitive oare) to the steps of evacuation. The more delays that can be eliminated by simplifying the evacuation chain then the fewer hands the patient will pass through and the best concept of civilian medical care (one patient, one physician) will more closely be approached.

* * * * *

Major Russel W. Van Norman was trained in Orthopedic Surgery at William Beaumont General Hospital. Arriving in-country in November 1965 as Commanding Officer of the 46th Medical Detachment (Orthopedic) he was stationed at 8th Field Hospital from November through February 1966 and at 93d Evacuation Hospital from March through June 1966. In July he assumed command of the 3d Surgical Hospital (Mbl A).

Notes on Malaria: Past, Present and Future

By: Lt Colonel Raymond W. Blohm, Jr., MC
Medical Consultant, USARV

Introduction: Efforts during the past year to improve both the prophylaxis against and the therapy of Falciparum malaria have continued. While advances have been made in drug prophylaxis and suppression, experience has again demonstrated vividly that the best and first line of defense against malaria is to keep from being bitten by infected mosquitoes through time proven anti-malaria discipline.

Generally, therapy has been resolved into several programs which are giving treatment failure and relapse rate under 5 percent, a vast improvement over the 50 - 70 percent relapse rates of last fall and early spring.

The following paragraphs illustrate recent changes plus current thoughts and studies in prophylaxis of and therapy of malaria:

1. Vivax malaria continues to be seen occasionally and responds well to standard chloroquine treatment for 3 days. Identification of the malaria parasite remains most important in all cases, since therapy for Vivax malaria is so specific and since these patients can be returned to duty much quicker.

2. The protocol started in early June 1966 by Lt Colonel Jefferson on comparing Daraprim and Quinine therapy vs Daraprim, Quinine and Dapsone therapy was discontinued on 31 July, all patients to continue on the protocol until completion of therapy if admitted up to and including 31 July 1966.

3. Dapsone (DDS) was authorized on 16 July 1966 to be used 25 mg daily prophylactically against malaria, in addition to the weekly C-P tablet, in the major line units in the FFVI area.

4. Dapsone prophylaxis or suppression, as with the C-P tablet cannot be allowed to lapse or be interrupted. Dapsone suppressed malaria has broken through after 3 or 4 days when individuals were off Dapsone, e.g., while on R&R, etc. Once started in daily suppression, it must be continued, including 4 weeks after one's leaving Vietnam.

5. The use of Dapsone (DDS) prophylactically by line troops in FFVI areas where Falciparum malaria is endemic dictates that it be continued during therapy in malaria cases from that area and the patient be returned to duty on the drug.

6. The treatment of Falciparum malaria currently is Quinine, 10 grains tid, for 14 days, and Pyrimethamine (Daraprim) 25 mg tid for the first 3 days of therapy. If the patient has been on DDS prophylaxis, this is continued throughout treatment and convalesence at the standard 25 mg day. The Chloroquine-primaquine weekly tablet is discontinued during quinine therapy and is restarted the week following completion of quinine therapy. Convalesence is recommended at 10 to 14 days for Falciparum malaria. Line troops, riflemen, etc, should not be returned to duty unless their hematocrits are above 36 vol percent.

7. A graduated physical fitness program is available at the 6th Convalesence Center, Cam Ranh Bay, where malaria patients especially can continue their treatment and convalesence and be returned to duty in excellent physical condition. Malaria patients should not be transferred to the center from hospitals until they have been afebrile 24 hours.

8. Peripheral blood smears confirming the diagnosis and type of malaria should be sent on by every medical installation to the receiving medical installation, including the 6th Convalescent Center. In the case of recurrent malaria during convalesence, reexamination of original slides have occasionally revealed mixed infections or errors in type diagnosis originally. Careful observance of this procedure will preclude false treatment failure or recrudesence rates.

9. Efforts are being made to still further reduce Falciparum malaria treatment failures or recrudescences by treatment with new or different drug regimens. Most promising have been the sulfa drugs, known for some time to have schizontiocidal action and also to be synergistic to Daraprim.

Permission to try therapeutically a new long acting sulfa drug (RO4-4393, also known as Fanasil or Fanzil) has been granted by the OTSG in combination with Quinine and Daraprim as noted above. This drug is still investigational and remains under control of the Medical Consultant, USARV. It will be used only in Field and Evacuation Hospitals where laboratory evaluations of blood, liver, and renal functions can be followed. RO4-4393 is of the sulfadiazene group of sulfanamides and specifically is an isomer of Sulfadimethoxine (Madribon). Its half-life in man is very long, ranging from 100 to 200 hours. It is absorbed completely by the intestine. It also has active antibacterial action.

It has been used both in therapy and suppression against Daraprim and Chloroquine resistant Falciparum malaria in Afrioa with promising results.

Side effects of RO4-4393 in over 5000 persons receiving the drug therapeutically for bacterial infections or in research have included: nausea & vomiting, pruritus, headache, skin rash, drug fever, anaphylaxis, dizziness, edema, Stevens-Johnson Syndrome, and leucopenia. Most of these side effects are mild and are common to other sulfonamides. Previous use of other sulfonamides may lead to cross-sensitization. This drug should not be prescribed for patients with a history of known adverse reactions to sulfonamides. Adequate fluid intake must be maintained while on this drug. It will be used only in male military personnel with falciparum malaria who have not been on Dapsone prophylaxis and only in selected Field and Evacuation Hospitals. The dosage is 500 mg orally on the first day of diagnosed Falciparum malaria. The malaria protocol of 15 June 1966 (on Dapsone, in treatment), should be followed during treatment and convalesence in relation to observations in therapeutic response, side effects, and laboratory observations.

Daraprim and Quinine, in dosage schedule given earlier, will be followed as before, and the Fanasil 500 mg. given on the 1st day of therapy when possible.

10. Treatment recrudesences occurring in convalesence or within 30 days after previous treatment should be retreated with Quinine, Daraprim, and Fanasil by the receiving hospital.

11. Cerebral malaria must be recognized early and treatment started early and energetically to assure good results. Treatment recommended is I.V. Quinine, parenteral Chloroquine, and parenteral Dexamethasone or comparable steroids. Careful use of heparin anticoagulation, dependent on the individual patient's overall status, the physician's experience and the laboratory capabilities to support this type of therapy may be added to the above, but not used routinely.

HOOKWORM EPIDEMIC IN THE 1ST CAVALRY DIVISION

By: Captain Alexander G. Vandevelde, MC
Preventive Medicine Officer
1st Cavalry Division (AM)

I am going to present some data on the incubation period of a series of patients with hookworm, whom we encountered after our Bong Son operation in February. The study was made with the following criteria: First of all, a definite diagnosis had to be made with ova of the parasites in the stool, thus we had to drop a couple of clinically suspected cases. Mixed infections were rejected. The series reported here consists of 39 cases from one battalion, 2/7 Cavalry. The 1/7 and the 2/7 Cavalry Battalions were in the Bong Son area from 25th January to 8 February. But the 1/7 Cavalry Battalion left the area the 1st of February, and this battalion had no cases of hookworm at all. The weather was pretty bad in the beginning of that operation and bathing in the Bong Son River was excluded. However, the 2/7 Cavalry stayed in the same area alone from 1 to 8 February. The median day then, is 4 February. The weather at this time was fine, and since we had problems with potable water, or even enough water to wash, the troops went into the Bong Son River and washed to keep their personal hygiene within satisfactory limits. Our first case from the 2/7 Cavalry came in 61 days after they left the area, and the last case was found 85 days after leaving the area. The mean day of admission was 78.7 days, with a standard deviation of 4.8 days. The true value of the mean for the population, not for the sample, was calculated to be between 77.4 days and 79.93 days or slightly over 11 weeks. The estimate of the standard deviation for the population was 5.3 days. The incubation period reported here is significantly different from the textbook values of six weeks.

Eosinophilia was as follows: four cases had 0.5 percent eosinophilia, fourteen cases were between 6 and 10 percent, seven cases were between 11 and 15 percent, five cases were between 16 and 20 percent, two cases were between 21 and 25 percent, and two cases were between 26 and 30 percent eosinophilia.

As far as the clinical symptoms are concerned, diarrhea was the presenting symptom in 91 percent of the cases, epigastric discomfort in 82 percent of the cases, frank abdominal tenderness in 17 percent of the cases and vomiting in 22 percent of the cases. One patient complained of constipation; one patient complained of cough several weeks before the diagnosis was made.

In summary, the incubation period of hookworm was found to be between 10 and 12½ weeks in a focal outbreak in a battalion of the 1st Cavalry Division.

Questions and Comments:

Q. Were other exposure times of 1/7 and 2/7 equal?

CAPT VANDEVELDE: Yes, they were together in an operation at Sui Ca Valley, where we have been many times, and had no hookworm at all. The

8th of February was the last bivouac night of the 2/7 at Bong Son. From the 8th of February on the two battalions were together again. Major Nowosiwsky noticed the outbreak immediately and suggested that I collect the data I have reported here.

Q. Were there any asymptomatic patients? Did you examine healthy men for ova?

CAPT VANDEVELDE: No, not in a combat unit. When men are sick we see them, but not otherwise.

DR. STOCKARD: I would like to thank Captain Vandevelde for a very interesting discussion of an interesting epidemic; a disease that I normally wouldn't think of as creating a problem with troops.

REPORT OF INTERESTING CASE

By: Lt Colonel Robert M. Hall, MC

On 24 June 1966 a US Army PFC was admitted to the 8th Field Hospital with a wound of his right shoulder incurred approximately 1300 hours near Tuy Hoa, RVN. Initial examination revealed a small 2mm in diameter wound of entry in the area of the right posterior deltoid and x-ray revealed a small 3 cm in length dart-like metallic foreign body near the medial border of the scapula at the level of the 2d rib. The distance of the metallic foreign body from the wound of entry was approximately 15 to 20 cm. This injury was not associated with a significant degree of pain. The patient was treated conservatively with local cleansing of the wound of entry and antibiotics. He was discharged to full duty on 28 June 1966. Later investigation proved that the dart-like foreign body was a flechette, presumably fired by friendly artillery.

This case is of interest in that the wound of entry was very small and easily could have been completely overlooked. The flechette has sufficient velocity to penetrate deeply. The flechette can easily be identified if viewed radiographically in profile, however, if viewed end on it would be so small as to be easily overlooked. Penetration of the head, neck, chest, or abdomen could produce a potentially fatal injury without appropriate diagnosis and treatment. With penetration of soft tissue unaccompanied by evidence of nerve or vascular damage the preferable treatment would appear to be conservative since operative debridement to remove the flechette would require an extensive incision with extensive soft tissue dissection.

Current list of Consultants to the Chief Surgeon, Hq USARPAC.

Colonel WILLIAM Y. C. HANNUM, MC, Psychiatry & Neurology
Colonel JAMES A. ORBISON, MC, Medicine
Colonel THOMAS J. WHELAN, JR., MC, Surgery
Colonel HENRY C. THOMPSON, III, DC, Oral Surgery
Lt Colonel GEORGE S. WOODARD, SR., MC, Aviation Medicine
Lt Colonel WILFRED B. BELL, DC, Periodontology
Lt Colonel VIRGIL WOODS, DC, Prosthodontics

Figure 9: ? Sanitary? Fill?

Bygone Days - V

Dr. Francis Grant's operation reports always began with a comment concerning the clinical features of the case, and then went on to a description of the procedure itself. One comment among the thousands, however, is unique in having dealt with his staff rather than with the patient, and it came about in the following way. He had spent a few weeks in Hawaii, centered around a meeting of the Pan-Pacific Surgical Association. A group photo had come back to us showing him in a colorful sport shirt, and that and the thousands of miles between us engendered a false sense of security at home. Unconsciously we began to cut corners in traditional surgical patterns such as draping, the manner of holding, tying and cutting sutures, etc. The changes were subtle, but the day of reckoning was not, for when he returned he saw at once that something had happened, and he gave us a very, very difficult time. His exasperation extended even to the nervous medical student whose job it was to touch his bayonet forceps with the Bovie tip. "If you must shake, at least shake in rhythm with me." In one swift lesson he brought us to heel. He then went up to the office and dictated the following operative note: "Comment: While I was away at the Pan-Pacific Surgical meeting my surgical team fell apart. But I fixed them. Procedure .....".

It was an understanding audience that listened to Dr. Edgar Kahn's introductory remarks on "Twenty Years' Experience with the Surgery of Hypertension", given as the Presidential Address at the Cushing Society in 1954. "In November 1933, Max Peet performed his first splanchnic section for hypertension. The patient was an extremely sick 29 year old man whose blood pressure did not drop below 260/150 even on bedrest. He was almost blind from hemorrhages and exudates and showed papilledema of 4 diopters. The BUN was 45 mgs%. His headache was incapacitating. After the operation, however, the blood pressure fell to 120/80, headache was relieved, the BUN was 20 mgs%, and his vision became good enough to enable him to use a micrometer screw. A few months later I first operated on a patient for hypertension. The BP was 210/120, the BUN was 40 mgs%, there was severe retinopathy and headache was intractable. Postoperatively the BP was 210/120, the BUN 40 mgs%, the patient's vision was no better, nor was his headache relieved, and a thrombosis of the conus medullaris resulted, followed by incontinence of the bladder and bowel."

This feeling of resignation to the vicissitudes of surgery was more pointedly expressed by a neurosurgical wife, once. A group of doctors was chatting during an intermission at the San Francisco Symphony one night when one asked another, "Remember that very sick patient with a brain tumor I sent you some time ago? What did he have?" Standing at his elbow, his wife muttered, "He had a funeral."

HAROLD ROSEGAY