

MEMORANDUM

RM-3653-PR

JULY 1963

SYMPOSIUM ON THE ROLE OF
AIRPOWER IN COUNTERINSURGENCY
AND UNCONVENTIONAL WARFARE:
THE ALGERIAN WAR

Edited by A. H. Peterson, G. C. Reinhardt and E. E. Conger

PREPARED FOR:

UNITED STATES AIR FORCE PROJECT RAND

The **RAND** *Corporation*
SANTA MONICA • CALIFORNIA

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PREFACE

This Memorandum is a condensation of the discussion of the Algerian War, a part of a RAND symposium on "The Role of Airpower in Counterinsurgency and Unconventional Warfare," January 14-18, 1963, A. H. Peterson, Monitor.

Because the material consists of personal recollections and discussions by men who were active in the campaigns, each Memorandum in the series covering the symposium was done in a purely reportorial style, with care exercised to retain the flavor and connotations of the discussants. For the same reason, no attempt was made to resolve any implicit or explicit differences among the participants' views or between them and available published works on the same subjects.

The symposium was organized to collect relevant detailed information of these types of warfare in the hope that such information, examined with the original environments firmly in mind, would suggest lessons for current air operations. In addition, the material, when considered within the context of advanced technology, should provide some guidance for future planning and hardware development.

The symposium Memoranda are as follows:

Symposium on the Role of Airpower in Counterinsurgency and Unconventional Warfare:

The Malayan Emergency, RM-3651-PR

The Philippine Huk Campaign, RM-3652-PR

The Algerian War, RM-3653-PR

Chindit Operations in Burma, RM-3654-PR

Allied Resistance to the Japanese on Luzon, World War II, RM-3655-PR

Unconventional Warfare in the Mediterranean Theater, RM-3656-PR.

The discussion leader for the subject of the present Memorandum was Lieutenant General Y. P. Ezanno, FAF.

FOREWORD

To be of value in actual application, battle studies should be based upon intimate experience in modern combat, not upon historical records of general operations of troops. The individual action of the soldier remains enveloped in a cloud of dust, in narratives as in reality. Yet his battle experiences must be studied, for the conditions they reveal should be the basis of all fighting methods, past, present and future.

Where can data on these questions be found? Stories in great detail, for the smallest detail has its importance, secured from participants and witnesses who knew how to remember, are necessary in a study of the battle of today.

The number killed, the kind and character of the wounds, often tell more than the longest accounts. Sometimes they contradict them. We want to know how man fought yesterday. Under the pressure of danger, impelled by the instinct for self-preservation, did he follow, make light of, or forget the methods prescribed or recommended?

Battle Studies, Col. Ardant du Picq,
(translated from the 8th edition),
Military Service Pub. Co.
Harrisburg, Pa., 1958

PARTICIPANTS IN THE DISCUSSION OF THE ALGERIAN WAR

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I. INTRODUCTION

GENERAL EZANNO: We will first describe the history and geography of Algeria to put the Algerian problem in its proper frame. After that, General Giroult will brief you on the organization of the ground forces, since the Air Forces were adapted to that of the Army in Algeria. Next, Colonel Mitterrand will talk about the organization, resources, and mission of the Air Forces in Algeria, and the rules under which we worked. Then we will describe typical examples of the different types of operations we have been through.

Since the terrain and the enemy were different in Western, Central, Eastern, and Southern Algeria, we will describe typical operations in all four areas, noting the special procedures used in each area.

The French presence in Algeria began with troops landed there in 1830 to stop Algerian interference with our merchant ships. At that time, the Turks loosely ruled Algeria's 2.3 million inhabitants, who were split among many semi-independent little kingdoms quite unlike and usually fighting among themselves. The Turks were largely concentrated in Algiers.

Difficulties these French troops met during the landing and occupation of the country were due mainly to lack of roads. Much of the terrain impeded military operations. Some of the local chiefs, like the Constantine bey and the Bir Kadir, put up a fight, especially southeast of Oran. For a long period after that we had no major troubles, except for a rather tough fight in Kabylia in 1870. The Algerians proved faithful and courageous soldiers in the French Army in both World War I and World War II. About 150,000 Algerian troops were killed in those wars.

Starting in 1870, French settlers developed the beautiful vineyards and fruit tree groves out of marshland in Northern Algeria. Most of those people came from Alsace-Lorraine when the Germans took it over in 1870. In Oran were many Spaniards who had lived a long time among the Arabs and who had been accustomed to going back and forth between North Africa and Spain. In the eastern sector, near Tunisia, are Italians and Maltese who, even today, move between Italy and Malta and North Africa.

We had no unrest in Algeria until 1940. Our first real problem was the Setif rebellion that began on VE Day, May 1945. I was there and remember it as limited in area but extremely violent. It was smashed in about 18 days.

After World War II independence became very fashionable, but a lot of people were pushing too fast. Some of the political movements, like that of Ferhat Abbas, were requesting assimilation with the French. I met him in Setif in 1945--he was my prisoner for about three days--and he told me that the aim of his party and himself was to become Frenchmen. Others, like the Communist Party of Algeria, were aiming at independence. The religious authorities, the Oulemah, also had a more aggressive approach, much as in Egypt.

Later, during our Indochina campaign, the Tunisian and Moroccan protectorates became independent. Algeria's location between those two independent Arab countries naturally increased the pressure for independence. This was a familiar situation to us; we had taken over Tunisia and part of Morocco for exactly the same reason, but in reverse. Already in Algeria, we gradually had to take over area on each flank. You cannot dream of one part of that region being under one rule and the two wings under another; it is impossible.

North Africa as a whole had two native populations--the Berbers, who live in South Morocco, Kabylia, the Aures and Nememcha Mountains, and the Arabs who came as invaders long ago, went as far as Poitiers in France, and are still in Algeria and Morocco.

The Berbers were Christians before the Moslem religion was imposed upon them by the invading Arabs. For example, Saint Augustine and three or four bishops from the Roman days were Berbers. In the south today the religion of the Berbers is a mixture of Mohammedanism and Christianity, although officially the Berbers are Moslems.

Geographically, Algeria is widely varied (Fig. 1). The Mediterranean coast is hilly with rather high cliffs, especially in the east. Access along the coast is very difficult, except in the Mostaganem-Oran area in the west. Harbors are few; the three main ones are Bone, Algiers, and Oran. The plains along the sea are rather narrow. They were marshes when the French arrived, but they have been drained and now give wonderful

Fig. 1 — French organization in Algeria

crops, especially citrus fruits and grapes. Algeria, with its vineyards in the Bone-Mostaganem Valley and the Oran Plains, is, to me, very similar to California.

Right behind the narrow plain is the first mountain line, which extends to Algiers and becomes the coastline in Kabylia. Another plain lies behind this first mountain chain, extending south to plateaus, about 2200 feet high, very flat and very dry. Farther south, more or less as a border between Algeria proper and the Sahara, are the Saharan Atlas Mountains, which resemble the Rockies. Beyond them is the desert.

The Moroccan and Tunisian borders of Algeria are completely arbitrary lines as far inland as the plateau, unmarked by anything like a large river or other natural feature. That complicated the problem of interdicting at the borders.

South of the Atlas Mountains, the eastern and western sections of the country are desert, which made air surveillance easier. We had quite a network of roads in Algeria itself, but the mountainous area in the center provided many places for rebels to hide. It contains several small wadis--narrow, deep canyons with much vegetation.

Cities such as Algiers, Tlemcen, and Oran had the old Turkish native quarters, like the Casbah in Algiers and La Moune in Oran. These places, with their underground pathways, were vestiges of the Middle Ages. They were very difficult to screen and search. Sometimes the enemy hid under the permanent cover of the orange trees and other vegetation in the well-cultivated area of the plain itself.

The weather is typically Mediterranean. The North near the mountains gets the most rain. The worst climatic conditions are found in Kabylia and near Bone. The Algiers area has about three or four months of bad weather a year; the West about two. In the West, there are early morning strata that last until about noon.

The configuration of the Algerian terrain causes what the weather people call mesoclimates. Beautiful weather will be found in a given area, and about 80 miles away there will be fog or very low clouds that prevent air missions in ground support. That was one reason we worked out our deployment very differently from the ideal. We were bound by

these mesoclimates. When we had to give ground support, going visual from an airfield to the area where we had people fighting on the ground, we had to have clear weather under the clouds. We had no radio facilities to fly through the clouds, although these averaged only about 3000 feet thick.

The weather conditions were worst in Kabylia. Most of the time the ground troops had to work out their operations without assurance of air support, because the weather was unpredictable and the bad weather season lasted about five months. Down south, of course, we had sandstorms and the well-known Libyan and Egyptian type of weather.

The Algerian population is about nine million, including roughly one million Europeans, mostly French, but with some Spaniards, Maltese, and Italians as well. Deep in the country, the Arabs and the French lived together with no problem, in the manner of farm workers and their supervisors. In the cities they were not so thoroughly mixed.

Some reasons for Arab discontent can be spelled out. One was the lack of opportunity for an educated man. We provided educational facilities for Algerians, maybe not enough, but a lot. Natives who got university educations abroad and came back to their own country could not find appropriate work.

This reminds me of a discussion I had in Indochina with a Vietminh officer who had been a student in Saigon and who had gone on to a university in France where he had received an electrical engineering degree. An easy job was offered to him in France, but he declined it in order to return to Indochina, get married, and work in his own country. However, the type of industry for which he had been trained just did not exist in his homeland. That was one of the problems in Algeria also.

A second problem was that, except for agricultural land, there were few natural resources in Algeria. The existing crops could be extended only slightly. There was practically no coal, iron, or copper. The resources are in Morocco and Tunisia. Of course, there is petrol now and its existence was known before, but drills to go deep enough were not available to us until 1957.

II. REVIEW OF THE ALGERIAN WAR

DISCUSSION

GENERAL EZANNO: The history of the Algerian war divides into four periods: (1) October 1954 to October 1955, (2) October 1955 through 1958, (3) January 1959 to January 1961, and (4) January 1961 to independence.

In the first period the real rebellion was limited to Eastern Algeria and Kabylia. The rebels were few but extremely active, members of an extremist political party well trained and highly motivated.

At that time nobody in France took the rebellion seriously. It was dealt with as a strike is in an industrial country. Available French military forces were very few. The Indochina campaign was just over; the troops were being repatriated, and we had our problems with Tunisia. The Algerian revolt was skillfully timed; we were engrossed by a lot of other problems and hampered in many ways.

In the second period the rebellion expanded slowly throughout Algeria. The enemy began to set up the political-military organization typical of Communist-type warfare. Men were put in charge of such activities as information, intelligence, collection of money, and hiding of agents. By imposing their will on people, pushing them into these activities, and then keeping those involved under surveillance, the insurgents cleverly made the population into accomplices in the revolt. Although the people didn't want to get involved, they were drawn in sooner or later. A combined political and military organization is certainly the most difficult kind to destroy.

Through 1958 the Front de la Liberation Nationale (FLN) had killed roughly 14,000 people in Algeria--12,000 Moslems and 2,000 Europeans. They controlled the military organization within Algeria--the FLN is a military organization--and people working with them in Tunisia and Morocco were members of the exterior provisional government of the rebellion.

Inside Algeria we faced 40,000 armed rebels, in units equivalent to platoons, companies, battalions, and so on. Except for perhaps

five or six occasions, they operated at company level, 140 men. These, called "katibas," were roughly equivalent to an infantry company.

Outside, comparable forces of well-trained men lived in training camps in Tunisia and Morocco. A few crossed the border into Algeria, but not many. These forces had rifles, Tommy guns, machineguns, mortars, bazookas, and other military equipment. In addition, there were about 80,000 helpers, local recruits, sometimes armed with rifles and shotguns.

Finally realizing the situation, the French authorities reinforced the Army in Algeria, where the military establishment went from 50,000 men and two squadrons of fighter-bombers to 400,000 men and about 1000 aircraft, including helicopters. In 1958, the organization of the command was adapted to the situation. General Giroult will talk about that later.

We had the help of the bulk of the local population. There must have been around 640,000 French Army veterans of the two World Wars in Algeria, and perhaps 200,000 of them joined the French Army, the "Harkis," village self-defense groups, and similar units.

The civilian administration was also augmented. About 600 administrative posts were installed to improve the link between the population and the French Army and administration.

Last, but not least, the fences on the Tunisian and the Moroccan borders had been completed for a total length of about 3000 kilometers (double barriers in many places). From early 1959 until the end of the war, no enemy formation penetrated the fences, but occasionally one or two men were able to get through.

I had watched that in my area, because when I took my command in early 1957 the fence did not exist between Morocco and Algeria. When I left in December 1959 the fence had been built, improved and modified, and we practically did not have to bother about it any more. The enemy could not go through, that was all; and that is worth mentioning. The fence did cost a lot of money, but unless the enemy used tanks and rockets, they just could not get through.

I was in charge of surveillance along the fence and of night-illuminating and bombing capabilities maintained for the troops guarding the fence. We used radar-equipped bombers to follow through when the

Army detected something on their ground radar. We will talk about that later.

A major problem in that period was that most of the troops were used in a static way. Mobile troops ready to fight against the rebels, who were always on the move, were practically non-existent. Each unit was tied to its area, city, village, bridge, or pipeline.

That was the situation in 1959 when General Challe arrived in what we have called the third period of the war. What he did was very unpopular with us at first. He began by selecting men from each large Army and Air Force unit in order to build up strategic reserves, more or less what General Norstad did with his mobile force. He drew some of my helicopters and fighters to make a highly mobile strategic reserve. Naturally, he took the best troops and the best aircraft.

On February 5, 1959, he began implementation of his plan in my area in the West. Later in the year he turned his attention to the East, adding forces to his reserve from areas cleared of the enemy. It was the only way to deal with the enemy. The result was that, at the end of General Challe's operation, the rebels inside Algeria were down to 10,000 or 12,000. Nobody saw a katiba any more, or anything larger than a platoon. The rebel forces were broken. Both fences, as I said, were real tight. Nobody went through. The war was over in Algeria as far as military action was concerned. I am not talking about the political side. I am talking about the military aspect.

When I left my command in November 1959, I was given a short refresher course in NATO matters and sent to a weapon demonstration in the Pacific. I stayed away about five weeks. In the meantime, my wife drove all by herself in our private car to say goodbye to our friends in the Oran area. It was absolutely safe, as it had been from 1942 until 1954. The war was over. The political rumble was not over at all, but the war was over. After that, we had the negotiations.

COLONEL ADERHOLT: May I ask if the military objectives at that time had been accomplished?

GENERAL EZANNO: Yes. The fence was secure. The enemy was not

coming in from outside. The inside enemy was down to a mere bunch of terrorists throwing hand grenades in market places now and again, and small bunches--10 or 12 people--in the worst areas in the mountains.

It was peaceful in my area of responsibility. There were only 780 rebels in Western Algeria when I turned over my command to my successor in November 1959, as I remember the official estimate.

COMMODORE WARCUP: Would you identify all the 40,000 rebels as hard core Communists?

GENERAL EZANNO: When you read their instructions to their troops; when you got to know their political commissar, as they called him (they had a political commissar in each katiba doing exactly the job the Vietminh was doing--the ones you call the Viet Cong now, by the way); you saw they were using exactly the same political indoctrination as the Communists.

COMMODORE WARCUP: When you reached the stage where you said the war was over, would you say this political organization had been broken or was it just hiding?

GENERAL EZANNO: The military members of the organization, the fighting members of the organization, were completely broken in the West and could have been wiped out in the East in a short period of time. They were still in the mountains. Those remaining were not active any more and were very few in number. They were licking their wounds.

The official estimate of the total number of armed rebels left in Algeria in 1959 was somewhere between 10,000 and 12,000 for the whole territory, plus, of course, certain battalions outside, fully armed and equipped.

COMMODORE WARCUP: Had you removed the main Communist political leaders by this time, do you think? As you know, in the Communist organizations the political and military elements are integrated to such an extent as to be almost indistinguishable in this sort of a situation.

GENERAL EZANNO: The stated ideal for which they were fighting was officially non-Communist, purely national independence. But most of their weapons were provided by Czechoslovakia. We took hundreds of cases of weapons and ammunition from ships; each case bore the stamp of the Skoda factory. In September 1959 I received at my headquarters 600 machineguns taken from the enemy. Included was a German MG 42 that had been repaired, rehabilitated, and stamped Czechoslovakia, like all the others.

There were political commissars in each katiba or smaller unit, indoctrinating troops in exactly the Communist way. They never said officially that they were Communists, although their top leaders had attended training schools in Communist countries.

Pilots trained in Albania fly today from my airfields the four or five Mig 15s given to them by the Egyptians. The FLN had 61 pilots training in Albania and Russia. These never showed up in the air, but their successors are coming in now.

There is another point about weapons. Since the fence was effective, smuggling weapons into Algeria became almost impossible. The rebels in Algeria could not possibly build up another force like the first time, because of the scarcity of weapons.

GENERAL GIROULT: There was a problem of ammunition; the heavy weapons were stored in the mountain caves for lack of ammunition.

GENERAL EZANNO: We also had a very effective sea blockade. That is one of the points I have discussed quite often with my friends in the Pentagon: Why don't you sink all the junks around Vietnam now? That is probably where all the ammunition, weapons, and radio sets are coming from.

MR. PETERSON: Do you think the sea blockade was as effective as your land blockade?

GENERAL EZANNO: Let's say that each month about 600 ships were trailed. Of these, we ran an inquiry on about 300, and 30 to 60 were boarded. The sea surveillance was done by naval forces and long range aircraft.

GENERAL VOLCKMANN: Was there any effort to resupply the dissident forces from outside by air?

GENERAL EZANNO: Not by air. We had some very hazy instances of air intrusion from Tunisia and Morocco. They could have brought, at a maximum, radio sets, radio spares, literature, and money. We had, of course, a little smuggling activity by air. They were just small intrusions, nothing much.

The activities of the rebels differed greatly during those four periods. They started with small actions, assassination and so on, went up to troops in uniform and company size operations with heavier armament at the beginning of the Challe operation in 1959, and then dropped to small groups with a maximum of 12 or 15 men in the latter part of the war. There was also, of course, terrorism in the cities and in the countryside.

Since most of those enemy operations were conditioned by the terrain and environment, it seems better to talk about them later when we discuss typical friendly and enemy operations in the different areas.

The culmination of our military campaign was in the operations of Challe from February 1959 until April 1960. Those were really large operations and extremely successful to start with. To give an idea, during the month of February, the first month of General Challe's operation in my area, our losses were 159 killed and the enemy losses were 2350 killed. In very difficult terrain such as Eastern Algeria, the operations were not as conclusive as they had been in the West. Air support was very effective in certain areas, but much more difficult in Kabylia, for instance, because of the terrain and the vegetation.

I think everything else in the outline will be covered by one of us. I would just like to indicate three salient points.

First of all, contrary to their claim and contrary to what has been achieved at times elsewhere, the rebels had no kingdom of their own in Algeria, no terrain with their flag on it, no sort of sanctuary. These were always denied to them. Since about mid-1958 the fences on both sides were secure, and nothing went through. The armed forces of the rebellion, the 40,000 men, went down to 10,000 or 12,000 in small packs. The economic and agricultural activity of Algeria went

on steadily all during the rebellion. The only change came at the end when the Europeans began to flee and there were no longer cadres for agriculture or industry.

Secondly, our forces in the Algerian campaign were divided into the small mobile forces, thanks to General Challe, and the larger static forces, as always in this type of war. If you want to protect the population, roads, bridges, radio antennas, and all that, you must have men to guard them.

Lastly, the good results--because after all if we lost the war politically we won it militarily--had been achieved, thanks to the teamwork between Army, Air Force, and Navy. I think this is the main lesson. Each one can keep his own uniform, but if you don't work as a real team there is no hope at all.

GROUND FORCES: ORGANIZATION AND MISSIONS

GENERAL GIROULT: Gentlemen, my purpose is to outline our ground organization in Algeria during the period 1958-1962. The basic principle of this organization was to adapt the military organization exactly to the civilian administrative establishment. This aim was achieved in May 1958 with the organization of civil and military unified commands from the top, the Commander-in-Chief, down through the regimental area commanders. We considered this type of organization essential to deal with subversive warfare.

Algeria was divided politically into three large areas called, in French, igamies (Fig. 1). Each was about the equivalent of a province in Canada. So there were three igamies, plus the Sahara as an autonomous area. Those large areas were subdivided into departments. We had 15 Algerian departments plus two Saharan departments, each headed by a prefet. Each department was subdivided into districts called arrondissements, with a sous-prefet as the head of each. We had 72 arrondissements in Algeria.

There was exactly the same pattern for the military command. The Army corps area corresponded to the igamie, divisional zone to the department, and regimental sector to the arrondissement. So we had

three Army corps areas plus the Sahara command, 15 divisional zones, and 72 regimental sectors.

The total strength of the French armed forces in Algeria was around 400,000 men. There were also various auxiliaries--such as Harkis, Moghaznis, and village self-defense forces--a total of around 150,000 men. Among the 400,000 we had about 350,000 in the Army, 40,000 in the Air Force, and 8000 in the Navy. The Army included some 220 battalions of different kinds and, unfortunately, unequal efficiency for this type of warfare.

The basic unit for ground force operations was the battalion. We had to build up infantry battalions from all branches of service, assigning soldiers from artillery, cavalry, and engineering units as infantry men in battalions responsible for certain areas. The basic strength of a battalion was around 650 men. It was a light battalion with four rifle companies. For the sake of mobility, few heavy weapons were used.

The battalions were grouped in territorial divisions responsible for the protection of the different zones. Those so-called territorial divisions were, in fact, tailor-made for the different areas and populations involved, and cannot be compared to the U.S. Army standard division.

For instance, my division in Kabylia was the 27th Alpine Division, which included about 30 battalions to control the whole Kabylia. This is a rough, mountainous area, with snow for two or three months in the winter.

Generally speaking, our ground forces were employed as follows. The first mission was defense of the Moroccan and Tunisian borders. About 80,000 men were committed to defend the barrages (fence lines). The second was the protection of the population in the villages and towns of the 15 zones. To fulfill this mission (we called it "quadrillage") we had 180,000 men.

The third mission was to provide the general reserve, as built up by General Challe, to a maximum strength of around 20,000 men in two airborne and one light infantry divisions.

The fourth was to provide support units, logistics, headquarters, etc., for the Army, Air Force, and Navy. These required altogether 120,000 men.

So much for our side. Let us look now at the enemy. The enemy forces in Morocco and Tunisia were organized into regular battalions, with some heavy weapons. They had 10 regular battalions in Morocco and 20 in Tunisia for a total strength of around 25,000 men, but these did not succeed in crossing the fence. At the Evian Conference* the rebels gave a figure of 30,000, but I think that was a bit exaggerated.

Within Algeria, enemy regular forces were organized in katibas, equivalent to rifle companies, each including three or four platoons. Auxiliary forces were provided by "Mousseblines." These were badly equipped, but they accomplished a lot of jobs for the regulars and were used on a very large scale.

The total strength of the regulars varied considerably during the campaign. We estimated their strength at 40,000 at the peak of the rebellion. The regulars were grouped either into katibas of 90 to 120 men, depending upon the period of the rebellion, or in units of 10 to 15 men called "commandos." These commandos were very clever, bold, and difficult to destroy. We had lots of trouble fighting the commandos. Our continuous offensive actions, and our total control of the air, prevented the rebels from organizing units larger than katiba level inside Algeria.

The rebel territorial organization was very similar to our own. Algeria was divided into six "willayas," an Arabic word meaning military region (Fig. 2). A willaya was commanded by a colonel, some of whom became quite famous. Amirouche, the rebel chief in willaya three, took several years to kill. A willaya was divided into nahias, each commanded by a captain. The nahia was subdivided into mintakas, each commanded by a lieutenant.

The willayas usually were larger than the French territorial divisional zones. For example, willaya three covered two French zones.

*Evian-les-Bains, France was the site of unsuccessful peace talks between the French and the rebels in May 1961. ed.

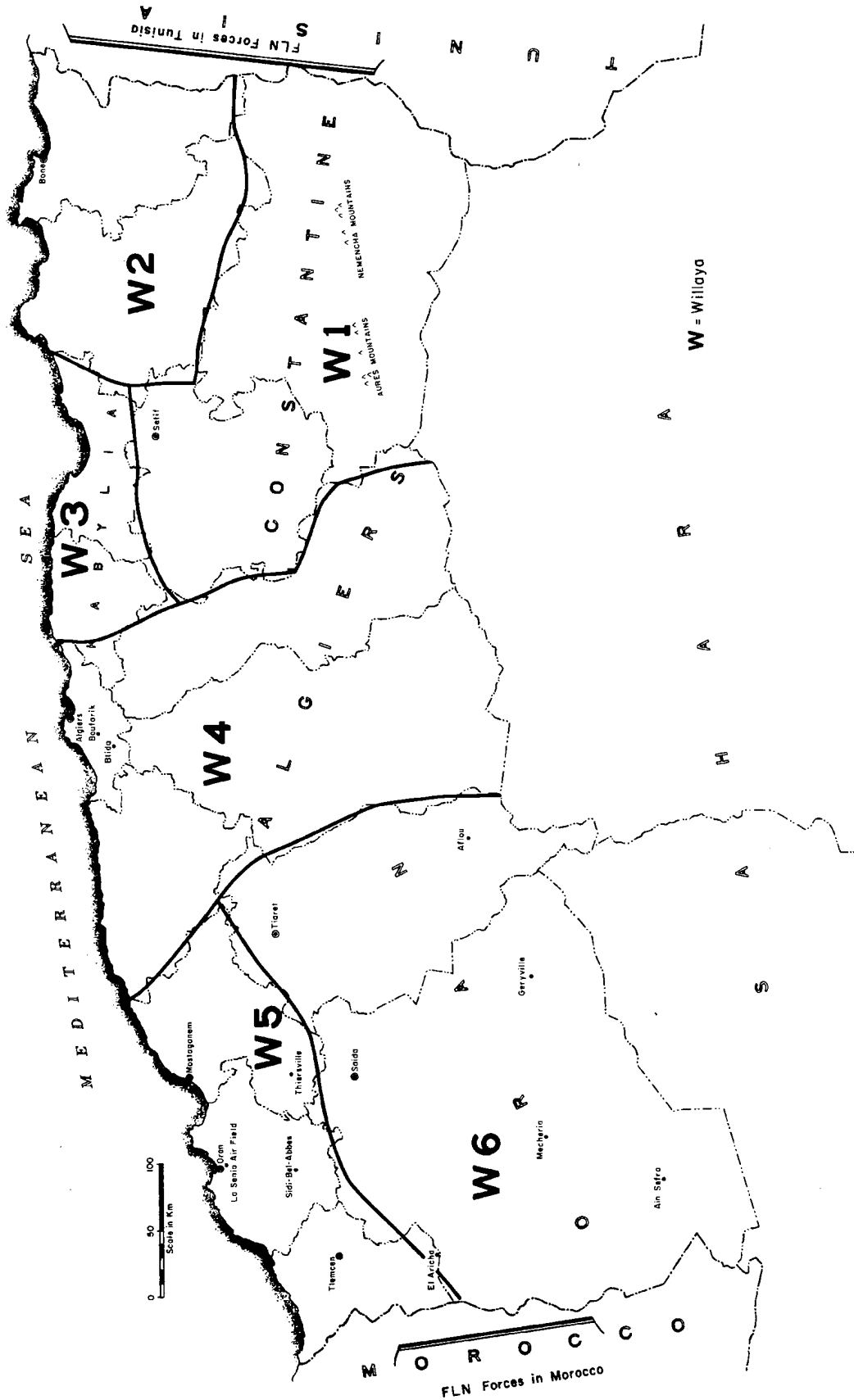


Fig. 2—Rebel organization in Algeria

In that willaya we had two territorial divisions opposing one rebel colonel over a number of katibas. These katibas moved continually by night to avoid destruction by French forces. A nahia generally was larger than a regimental sector, and usually a katiba was in a nahia. A mintaka was something like a battalion area, but at rebel scale.

AIR FORCES: ORGANIZATION AND MISSIONS

COLONEL MITTERRAND: I shall discuss the organization, resources, tasks, some of the rules of engagement, and the infrastructure and logistics of the Air Force.

At the beginning of the rebellion, the Air Force in Algeria was organized on a peacetime basis in a quiet country. Because of the effort made in Indochina, the resources for Algeria were limited. Despite this, the Air Force had a triple task: air defense, transport, and missions of sovereignty.

The territorial Algerian Air Command was subordinate to the Fifth Air Region, which had command over all air forces in Algeria, Tunisia, and Morocco. The Fifth Air Region reported directly to the Air Force General Staff in Paris, without specific connection with the Army command in Algeria.

Three main Air Force bases were in Oran, Algiers, and Blida--all in Western Algeria. Air units included one fighter wing in Oran, one transport squadron in Algiers, one sovereignty squadron in Blida, and several light units of different types, mainly liaison. In addition, a coastal surveillance flight was based at the naval station of Lartigue, a good naval station near Oran. There were adequate maintenance and support units in Algeria.

In addition, there was one Air Defense Sector directly subordinate to the Air Defense Command, Paris. This Sector had very poor detection capabilities and inadequate communication with the Algerian Air Command. Obviously a reorganization in depth was needed to provide effective air support. The air forces had to be flexible and responsive to the changing needs of the situation. The first objective in the reorganization

was establishment of an operational chain of command that could provide the ground forces with adequate air support. The general framework of this operational chain of command was stabilized by the end of 1957 (Fig. 3). At the top level was the commander-in-chief and joint staff with authority over all ground, air, and naval forces. At the second level, the Tenth Military Region for the Army and the Fifth Air Region for the Air Force were responsible for the preparation and the maintenance of the forces but not for the actual conduct of operations. At the lower levels the three Tactical Air Commands and the three Army Corps of Oran, Algiers, and Constantine cooperated closely through a Joint Operations Center, where the tactical operations were conducted.

Figure 4 illustrates the command structure in Algeria. The commander-in-chief was at the top. Next were Fifth Air Region and Tenth Military Region, without any specific connection but with very close personal contacts. At the operational level were a Tactical Air Command and an Army Corps with their Joint Operations Center. These two commands generally were located in the same place, very often in the same building.

At the next lower level was the last permanent organization, one Advance Air Command located as close as possible to the Army Area Command at the Division Zone level. These two commands were very closely organized and usually were located in the same building. Their JOC was a single room.

Finally, the commander of a particular operation was assisted by an Air Directing Post in charge of the immediate air support for the operation. It was a classic operation, but very decentralized.

In the Sahara the organization was rather different because of the specific character of that region. There, a Combined Command under the commander-in-chief had authority over both ground and air forces. Two Tactical Air Groups were attached to the Western and Eastern Military Commands, which were at the Army divisional level. Under these commands the organization was very similar to that in the North. It was, however, more decentralized, since Army-Air coordinated operations began at the regimental sector level instead of the divisional level.

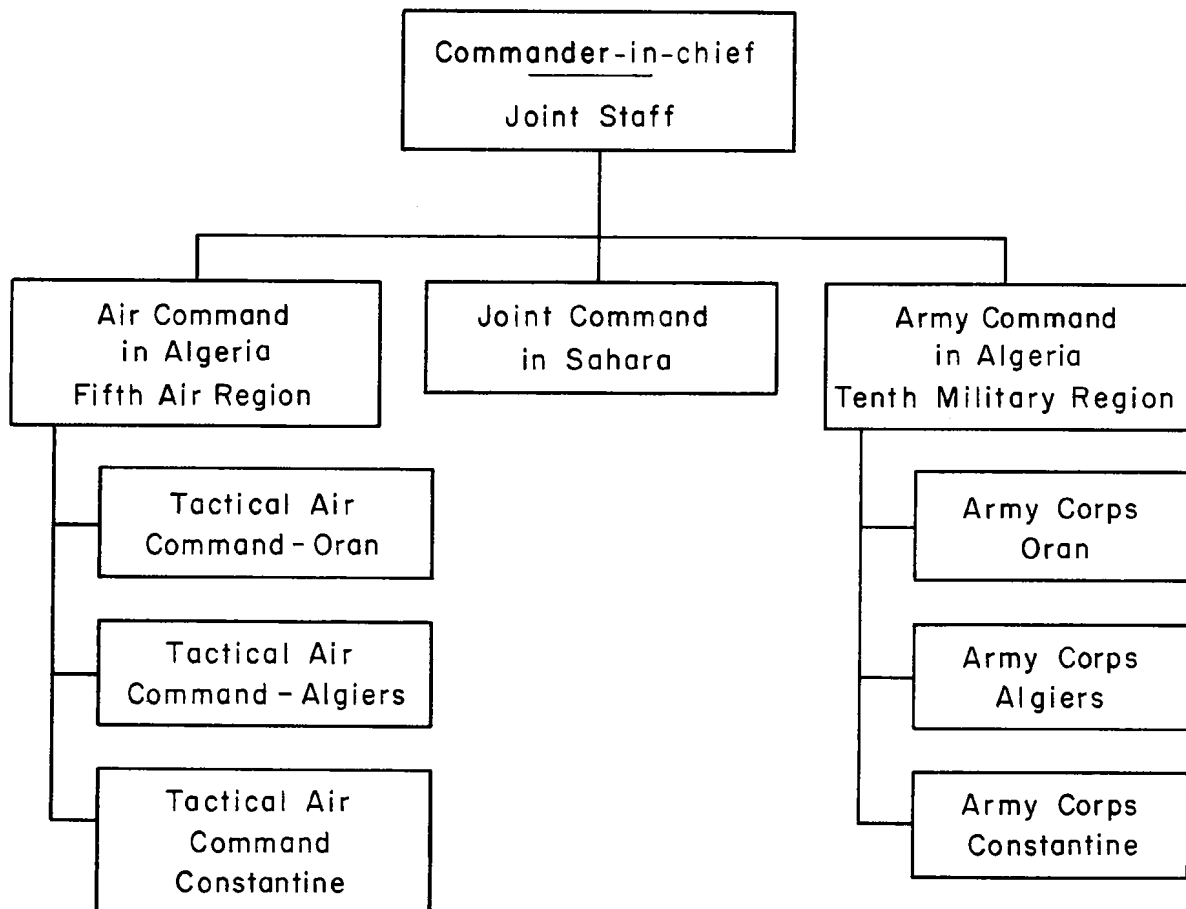


Fig. 3 — French military organization in Algeria, 1957

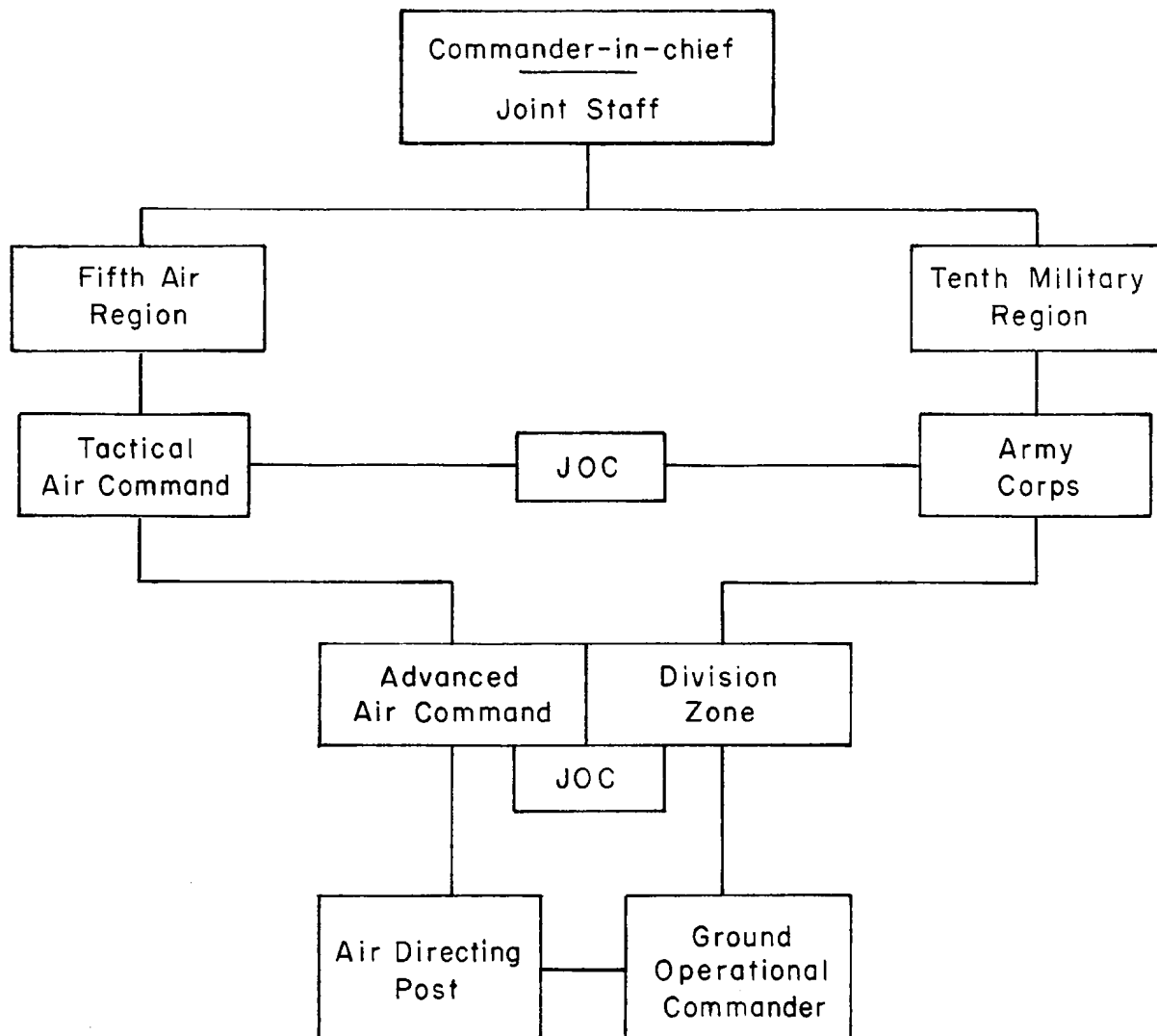


Fig. 4 — French command structure in Algeria

A second task in Air Force reorganization was a large buildup. At the beginning, most resources were held by the Fifth Air Region, which then provided the three Tactical Air Commands with those elements required for preplanned operations. Very soon it was obvious that a greater decentralization was needed. Each Tactical Air Command was provided with additional organic forces and the Fifth Air Region kept direct command of only the air defense and transport forces.

In addition, a procedure for reciprocal aid was arranged among the Tactical Air Commands to provide emergency reinforcement on short notice, mainly with heavy fire units. This required from 15 or 20 minutes to some hours, according to the distance to be covered.

Concerning air defense, there was no direct air threat against Algerian territory, but we had to face the danger of air incursions aiming to provide the rebels with supplies of various kinds. The borders of Tunisia and Morocco obviously were open to that kind of operation. Our first requirement was an effective air control capability, which called for an adequate radar system. Air surveillance was provided by one high powered master radar plus some low altitude detection by the artillery radar deployed along the fences. The results were very conclusive.

During 1958 and 1959, about 10,000 tracks a month were reported by the detection system. Among them, an average of only six or seven were not positively identified, and perhaps only two were estimated as suspect. In my knowledge, no enemy air incursion was proved during the seven years of war. However, the task was not easy. For example, civilian traffic flying over Eastern Algeria and the Sahara was controlled from Tunis, with which liaison was not always friendly.

Territorial support was also reorganized. The Algerian Air Command was absorbed into the staff of the Fifth Air Region as a territorial department. Three major stations were designated: Oran, Blida, and the rebuilt base of Telergma in the Constantine area. Telergma was an old American base in North Africa. These three main bases were developed to provide every unit and operational airfield with adequate logistic and administrative support. The chain of operational command was established to provide close cooperation with ground forces at each

level, maximum flexibility and speed of reaction, and decentralization of command.

On 1 January 1959 the air resources were as follows:

Fighters: 130 Vampire Mistral jets, 24 P-47s, 5 old night fighters.

Bombers: 22 B-26s and 8 RB-26s.

Transport: 48 Noratlas medium transports and 13 C-47s.

Liaison: 30 old twin-engine French Martinets, four old Crickets, and 24 single engine Penguins.

Reconnaissance: 35 MD 315s (Flamants), 20 Junkers 52s (very old but very useful), and 10 C-47s.

Light aviation: 64 Broussards (single engine, six places), and 242 T-6s, which were the main weapons of the Air Force in North Africa.

Helicopters: 122.

The grand total was 801. To this, add 100 mainly light helicopters, and 120 light observation liaison planes from the Army Aviation. There were also Navy aircraft, 36 Fleet Air Arm helicopters and 10 Neptune planes for sea surveillance.

These were, in general, unsophisticated aircraft, and most of them were very light. Almost all were capable of reconnaissance missions. There was a rather considerable air transport capability.

The aircraft were widely dispersed through the territory. This had been carefully planned to provide most of the Advance Air Commands (divisional level of ground forces) with a permanent reconnaissance and light fire capability, from either Air Force or Army Aviation, and to give the Tactical Air Command a capability of heavy fire support. The high command continually modified the deployment according to the situation.

The air transport force was maintained in general reserve to support the maneuver of the ground forces reserves, under the direction of the commander-in-chief.

As to helicopters, considerable attention was given to obtain the maximum yield of this particularly useful type of weapon. Their deployment resulted from an operational study carried out in cooperation with the Vertol Corporation. The helicopters were constituted in three wings, one of them belonging to Army Aviation, and based on three

main stations, Oran, Boufarik, and Ain-Arnat. They were committed in light detachments of six to eight helicopters, according to the needs of the immediate operation and the strategic reserves.

The Air Force included exactly 35,284 men as part of the French total force of about 500,000 in Algeria on January 1, 1959. European units also maintained air transport and combat detachments in Algeria to reinforce organic units.

So much for the resources. Now I will discuss the tasks and the rules of engagement. Obviously, the role of the Air Force in Algeria was very different from its traditional role in conventional warfare. Instead of powerful concentrations of force and maneuvers conducted at **very** high level of command, the Algerian war called for dispersion of forces and maneuver at low level of command. For this, air's primary role was reconnaissance, to detect the enemy. Collection of information was the key task of all forces. That has been true always and everywhere.

Results varied according to the conditions and the terrain, but there were many cases of operations carried out successfully from information provided by air sources. Air reconnaissance usually was done by light patrols on routine missions, reporting in flight. Every type of reconnaissance, including photographic, was used to cover large areas along the borders and in those mountains generally used by the rebels for hideout and communications lines.

Every type of fire mission, from light fire by T-6s to heavy bombing by B-26s, was undertaken when the enemy was located. All types of air missions were conducted, including very close support of ground forces, destruction of prepared positions, interdiction, netting, neutralization of dropping zones, protection of helicopters, and destruction of caves.

The organization was established to permit great flexibility. Operations ranged from a well-prepared, combined attack to action initiated by an air report and performed by aircraft diverted from routine missions.

Air transports performed a great variety of missions, including paratroop drops, routine support of dispersed ground and air units, area lighting during night operations, VIP liaison, evacuation of wounded, and rescue.

Before concluding, I want to say some words about infrastructure and logistics. As you may imagine, a tremendous effort was made to develop infrastructure, despite the lack of depth of the northern area. More than 30 airfields were built in the 250 kilometers between the coast and the border of the Sahara, and most of them could receive the P-47 and B-26. Oran, Algiers, Boufarik, Blida, Constantine, and Bone were developed considerably.

In the eastern part of the Sahara, 200 runways were suitable for light aircraft by the end of 1959. Radio communications and logistics were greatly developed.

Each Tactical Air Command had direct responsibility for operational logistics, including the ammunition, oil and fuel depots, and supply, providing mobility to the air detachments in its own area. The territorial department of the Fifth Air Region was in charge of the other aspects of logistics and administration, handling all day-to-day administrative and logistic problems.

AIR COMMAND AND CONTROL

COLONEL SAMPSON: On your air net, how did information on a target get from the field to your Joint Operations Center?

COLONEL MITTERRAND: We had a well-developed network of radio facilities specialized for air support. Each level of command had radio facilities for air support communication.

GENERAL EZANNO: The air support network was always open 24 hours a day to everybody. Thanks to the communication network, a request usually was received simultaneously at the Army Division, the Air Force Advance Air Command Post, and the Tactical Air Command Post.

At my level at Tactical Air Command, I often would send aircraft even before having the division reaction. Our antennas were located on high terrain and from my headquarters we could monitor everything.

COLONEL ADERHOLT: How was a request for an air strike from a company in the field processed through the command structure?

GENERAL EZANNO: We monitored the air request net continuously at my headquarters. When we received a request in my Ops room, we took action and at the same time called the division to tell them

what we were doing on the request. Often we were launching aircraft or choppers before any request came from the division.

COLONEL ADERHOLT: Let me clarify this. Was it necessary to process a requirement through the battalion, the regiment, and the division to the JOC?

COLONEL LAURE: No. Very often a company was able to alert aircraft that were already in flight. They went to support the unit immediately. It happened very often in my sector.

GENERAL EZANNO: In addition, I had a permanent air alert on call.

COMMODORE WARCUP: Would it be true to say that the JOC was concerned only with preplanned operations?

GENERAL EZANNO: The JOC was concerned with preplanned operations, that is right. Of course, one of its main jobs was to see that the necessary means were made available, because sometimes an operation starts very small and develops into something big. The key was our VHF coverage. It took 18 months to implement in my area, but I had complete coverage at 1,000 feet. Any aircraft seeing anything on the ground could report and, without losing sight of the target, be heard by somebody who could take action.

COMMODORE WARCUP: Presumably the decision therefore was fairly low down.

GENERAL EZANNO: Decision was at division air command post level for light fire and small helicopter detachments. For something bigger, it came to me.

GENERAL VOLCKMANN: What was your method of ground to air direction for low level, close ground support air strikes?

GENERAL EZANNO: Usually for jet fighter-bombers an Army aviation light plane would mark the targets with smoke grenades.

GENERAL VOLCKMANN: Was that light plane in communication with the ground platoon and the company commander?

GENERAL EZANNO: Yes. He had a VHF set, and what we call the H-300, the old ground-to-air communication set.

COLONEL SAMPSON: On a preplanned mission of your JOC, did the Army as well as the air select the type of ordnance, type of aircraft, validity of targets, and so on?

GENERAL EZANNO: I will explain how we worked in a minute.

COLONEL ADERHOLT: I would like to clarify the communication equipment. Are you talking about an SCR-300 walkie-talkie?

GENERAL EZANNO: Right.

COLONEL ADERHOLT: What did you use in the aircraft?

GENERAL EZANNO: The light airplane had both VHF and SCR-300. The fighters were equipped with the SCR-300 in addition to VHF, except for the Mistral jet fighters, which had only VHF. We had automatic repeaters for the SCR-300, and the location of the antennas on the terrain had a great effect. I remodeled my radio facility infrastructure. I took the old map of the conquest back in 1830, in those days they were using visual telegraph, and all the high ground points were beautifully located. So, I installed my VHF antenna accordingly, and put in a radio relay down to my air command post. In that manner I had a complete coverage of my whole area of responsibility, down to roughly 1,000 feet. That allowed a pilot to call when he saw something unusual--man, camel, donkey, or whatever it was--and then to orbit and keep sight of what was on the ground. If necessary, he could be relieved by somebody else in order to continue surveillance.

COLONEL ADERHOLT. In your control and identification of aircraft, were all aircraft controlled, regardless of branch of service?

GENERAL EZANNO: That is right.

COLONEL ADERHOLT: And were they cleared either by the main JOC or a decentralized JOC, so that you could identify and control every aircraft flying in the area?

GENERAL EZANNO: Right. I had a general situation map in my JOC.

COLONEL ADERHOLT: The other thing is, did you decentralize your JOC?

GENERAL EZANNO: We did, always. They were reporting back.

COLONEL MITTERRAND: The main job was performed at the advanced air post.

COLONEL LAURE: To answer your first question, very often a Colonel commanding a sector, for instance, didn't know anything about an engagement between one of his companies and the rebels. Very often he heard it about a half an hour later through the aviation channels.

This proved that one could summon air support very quickly after contact with the rebels.

GENERAL EZANNO: That leads to a very important point, as far as organization was concerned in my area, the need to unify the command of the air. Everything flying was my responsibility for air defense identification purposes. When you have possibilities of air interference, air smuggling, air surveillance, air observation, even the slightest air threat by the enemy, you have to have a unified air command, in my opinion. Everything airborne must be under one man, one organization. Otherwise it is impossible.

A Moroccan general was intruding now and again over our lines in the Tlemcen area, just to have a look at our defenses. Initially, I could not possibly know when a radar pickup was one of his planes or one of our light Army planes. I knew where the Air Force planes were, but I did not have the faintest idea where the Army aircraft were. Then, we worked out an arrangement with the Army and I took over the whole.

COMMODORE WARCUP: I should say, "hear, hear."

GENERAL EZANNO: You can't plan otherwise. Everything that moves in the air must be known and controlled by one authority. That is one of my very strong beliefs. We tried at first to do it otherwise because that had been regulation. Along the border we had these surprises, which never materialized into something important, but they could have. We did not have the faintest clue about what was going to happen.

SQUADRON LEADER TWIGG: Weren't your VHF antenna stations rather vulnerable? Did you have any problems that way?

GENERAL EZANNO: No. We combined our resources with the Army. It took some time to work out. We selected about 11 high ground points that we really needed and arranged with the Army Signal Corps to relocate their radio relay stations on the same sites. Practically all our antennas were situated on high ground where combinations of Air Force and Army microwave, VHF, and other communications facilities were later collocated. The responsibility for the sites varied; sometimes it was Army looking after the security of the whole post,

sometimes it was Air Force. It worked out very smoothly.

All that took time you see, but it was certainly more economical and sensible. The only problem I had was the relay capability between those antennas and my air command posts. That took time, because we had remote control sometimes out to the maximum distance. It did work out beautifully, however.

I think one of the common shortcomings in this type of warfare is that UHF-VHF coverage is not adequate. As a result, when a recce pilot spots something, he has to climb or to fly some distance to get radio contact, thus losing sight of the potential enemy. I wanted to eliminate that. It took me 18 months to work it out, because my area was about 250 by 280 kilometers. Since I had direct communications with all my command posts by single side band equipment, telephone and teletype, there were few problems later on.

COLONEL ADERHOLT: Were there any unilateral air operations where you selected the target and operated alone?

GENERAL EZANNO: Yes. Colonel Mitterrand will talk about one in his area. That was the destruction of a katiba that went south of the barrage. There wasn't any possibility of ground action due to distance and terrain. Most of our sorties were in conjunction with the ground forces.

III. OPERATIONS IN DIFFERENT AREAS

GENERAL EZANNO: Each of us will now relate experiences in our own areas of responsibility. Obviously, there is no recipe for guerrilla warfare everywhere, nor was there a recipe for guerrilla warfare in the over-all territory of Algeria. We thought it better to have each of us give his own experiences in the area he knew well, where he had been in operation and in command.

WESTERN TACTICAL AIR COMMAND

GENERAL EZANNO: During my tour of duty in Algeria, I was in command of the western Tactical Air Command. My headquarters were in Oran and my territory was limited by the Mediterranean, the Moroccan border, the Saharan Atlas Mountains, and a north-south line 60 miles west of Algiers. As General Giroult told you, the limits of the Tactical Air Commands were the same as those of the three Army Corps in Algeria. I worked hand in glove with the commanding general of the ground forces.

Mission, Organization, and Forces

GENERAL EZANNO: I had the responsibility for air defense in my area, not a simple mission, although we had no air opposition. Rather, we expected some enemies that never materialized. We have already touched on one problem that did arise, that of Army light aircraft flying near the border. I considered it essential to have control of all flying in my area. Without it you can't do identification, use your radar tracks, nor fulfill your air defense mission.

The second part of my mission was surveillance of the fence and of the forbidden area between the fence and the geographic border. My third, and main mission, was support of the Army. We had only a few independent air actions, which were in the Sahara Desert.

Colonel Mitterrand has described the air-ground organization in Algeria. The official philosophy was to have the Tactical Air Command headquarters in the same place as the Army Corps headquarters. I worked it out by leaving everything that was not a part of operations on my

main base headquarters, Oran. Then, next to La Senia Airfield, near Oran, we set up what you call a JOC, but it was really stripped down. We had an operations room built around a general situation table showing the Army situation, air alert status, Army aircraft availability, etc.

We had a combined Air and Army operations section (A3-G3), really combined in that it included the same number of Air and Army officers, of the same rank, in order not to have conflicting seniority problems.

We had an intelligence, A2-G2, along the same lines. I had the Army photo-interpretation unit under me, and there was a combined Army-Air Force communication group in which we had all the facilities from the Army and the Air Force working to the benefit of the operations room. It took some time to achieve, but it did work quite smoothly.

We had an intelligence section, A2-G2, along the same lines. I had the general, the Army Corps Commander's operational deputy, and the other for me. We were located together and we worked together like a team. We were completely divorced from the Army generals and colonels who looked after logistics, pacification, etc. Also, we were separated from my technical wing, my maintenance, my administration, and all the rest. When I had something to do in these areas, I drove from the combined command post to my own headquarters, and my Army friend did the same. So, we really were about 38 officers working together. We were looking after the war--nothing else--intelligence, operations, and the necessary communications.

At the next lower level, I had air command posts with each one of the six Army divisions in my area. They were organized in exactly the same way--with one operation room, including intelligence and operations people from Army and Air Force, completely divorced from other problems. I insisted on having a separate building for them on or near an airfield--you have to be on an airfield if you are looking after air business.

In the field, Air Force and Army commanders worked together, as often as possible in helicopter command posts. The integration of services was achieved practically every time, down to the small operation commander level.

Regarding communications, we worked out joint locations for radio relay stations, VHF antennas, and other equipment wherever possible. This also simplified the maintenance and security problems. That, very briefly, is the way we were organized.

I had about six to eight thousand officers and airmen under my command and a total of from 275 to 300 aircraft and helicopters, including those in my own command and those on lease from the Fifth Air Region. Those on lease belonged to me until such time as higher headquarters called for their release. Now and again they were re-deployed to other parts of Algeria. I never had to call on Tactical Air Command in Algiers for aircraft, because I always had enough.

One squadron of B-26 light bombers was on lease at my main airfield. I had it most of the time. I had 50 Vampire Mistral jet fighter-bombers, obsolete, but very useful, and one squadron of P-47s, the old Jugs. I had two Noratlas transports that belonged to the Transport Command, but were on lease to me. I used them year-round for Army post resupply and for flare carriers. I had six flights of T-6s and one flight of Broussards, used as light observation planes.

Three squadrons of 10 fleet air arm helicopters each were under my command, plus one wing of Air Force helicopters made up of 2 squadrons of H-34s and one squadron of Alouettes. That gave me an average of about 75 helicopters that could carry eight to ten men each. The Alouette helicopters were very useful as flying command posts. I had also three to five RB-26s. Under the agreement we had with the Army, I used the six flights of Army Aviation light planes.

The distinction between organic units and units belonging to the Fifth Air Region never bothered us. We were told in advance that a given number of fighter-bombers, medium bombers, or helicopters would be made available for so many days, or, in the case of General Challe, that a large scale operation would last for a stated period.

The number of available airfields was increased during my time of command. To start with, I had Oran, Tlemcen, and Thiersville. When I passed my command to my successor, I had, in addition, airfields at Mostaganem, Tiaret, Aflou, Geryville, Ain-Sefra, Side Bel Abbes, Saida, a large one in Mecheria converted to jet use, one in El Aricha for

a pair of aircraft for fence surveillance, plus six or seven others not permanently occupied. The main twelve were permanently occupied by varied numbers of aircraft.

I had more than eighty helicopter refueling points, stocked with fuel, oil, and everything necessary. We had quite a few helicopter landing zones, with proper safety around them. That was a concern of an air command post and the Army. They put in new ones practically each week.

I mention the helicopter fuel supply points for one reason. When using our helicopters, we had a refueling problem. We found out, as everybody has, that if we could fly lightly loaded in fuel we could transport more men. Therefore, we needed more dispersed facilities for refueling. Each mission was arranged to have minimum fuel and maximum payload. That was achieved after very difficult work by the Army Petrol Service, which supplied fuel for my choppers at all the refueling points. That became very important.

COMMODORE WARCUP: Regarding the tactical deployment of your aircraft, you said they were deployed in various places in your area. When you deployed aircraft to support a short operation, did you move the ground crew, ground facilities, and maintenance facilities with the aircraft?

GENERAL EZANNO: I had nine airbases upon which I put my own support, and about four on which the Army provided support. In addition, I had a number of other fields from which we operated in case of a nearby, extended operation. We had a mobile, tactical detachment which was partly flown, partly driven. For instance, we had many operations in the mountains down south. Then I moved what I called my mobile, tactical group. The biggest detachment I ever moved included 54 aircraft and helicopters in a one-month operation in the area next to Colonel Mitterrand's command. I set up a supply line by Noratlas and sent all my lorries down by road.

COMMODORE WARCUP: That is the sort of thing that drives the technical and equipment people into apoplexy.

GENERAL EZANNO: That was a big do. I did that about five times during my operationl command.

Air Reconnaissance

GENERAL EZANNO: Concerning employment of forces, I go back to what Colonel Mitterrand said earlier. Point one for us was to detect the enemy. We could not have troops everywhere and the people were afraid to give information. In areas where troops were not stationed near the camps and villages we had to supplement the intelligence from ground sources by intelligence gathered from the air. To do that, we used our available resources as follows:

First, I had the photomapping of my area completely redone. This became very useful for planning air netting operations.

Air visual reconnaissance was used to determine behavior patterns of the local population. We had to watch in areas where the Army units were not stationed or could not go easily and often. By observation of the behavior of the population from aircraft overflying the area, we built up operations catalogs that showed the activities to be expected in the different localities.

Air crews were allotted small areas for regular surveillance. They were over them each day or every other day at different hours, in order not to have a repetitious schedule, which is never good. Pilots observed the way the men and the women in the villages behaved--if they were attending their animals or not, and if they were gathered in the village at the time they normally would be in the fields. We put that on the Army situation maps, which included information from other sources. If one day someone would report a group of men and animals going from Point A to Point B, we would know that it was just market day in that place. We could also deduce, for example, which buildings were used for propaganda work in the evening, and if the people were beginning to have a bad conscience and to be afraid of the aircraft. Our educated guesses of that sort were usually at least 15 days earlier than normal information.

When the people were going more and more toward the rebels, we observed smoke signals such as were seen in the United States during the Indian wars. By then it was too late to do anything because the people already favored the rebels.

We also used ordinary, normal reconnaissance. Early morning reconnaissance by low level jets was extremely useful in spotting men or animals in the border area. At the very beginning when we had no fence, the border was just a forbidden area. It was fairly flat terrain. The pilots knew where to look for people. Early morning and late evening reconnaissance from low level with jets was very useful. People would be surprised and have no time to hide their animals and themselves.

MR. PETERSON: General, do you emphasize the word "jet" on these reconnaissance flights?

GENERAL EZANNO: Yes, because in this type of operation we needed speed. It was not possible in the terrain of General Giroult's area in Kabylia, but in a fairly flat area such as all along the coast, we could use jet aircraft for low level visual reconnaissance. We had to put tip tanks on because jet endurance is not very long. But jets were very good, because people could be caught before they had time to hide. They were trained to listen for the noise of the propeller type of reconnaissance aircraft and then we could not see them because they hid under a rock or in the bush. If we could surprise them by flying very low, we could see the men and the animals, such as horses and camels used for smuggling weapons. Even if the men had time to hide, the animals were there. It took six or seven minutes to hide a horse, to have him lie down and cover him. So this early morning and late evening reconnaissance was especially useful in that area.

We often used hand-held cameras with our light planes to confirm verbal reports. They could be used well on slow and unsophisticated aircraft. I had about 12 or 15 cameras. Any camera will do: I asked for Leica because I had one and we just said Leica instead of 35-mm cameras. They were useful on many occasions. More conventional medium or semi-high-level photography was extremely useful to show storage places, concentration points and trails used by the rebels. It is extraordinary how much interpreters can determine by comparing pictures taken each fortnight or each week.

There is one thing I want to mention about the surveillance of the fence. By day, we patrolled the fence and also the area outside

the fence to be sure that nobody was there and ready to jump. At night, I had a Fleet Air Arm Neptune aircraft, loaded with flares-- and later bombs--on air alert patrol over the fence.

The Army had installed ground radar each 25 to 40 miles along the fence. There were nine, and later on they added at least three or four more. Those ground radars gave fairly good indication of anything moving west of the barrage in this flat terrain. Of course, many times the radar echo was from a wild antelope or even a ball of grass rolled by the wind. Let's say eight times out of ten it was a false alarm. That was a shortcoming of the type of radar we used in those days.

Patrol aircraft carried out blind bombing, by means of air-ground communications and the ground radar. Two ground radars were used, one to track the target and the other to track the aircraft, and a ground identification signal was used to start the bombing run. This type of bombing was not extremely effective, although it did hamper enemy attempts to cross the border. We killed about one hundred people, but that was not many compared to the weight of bombs dropped. I had two aircraft overflying all night long when the barrage was complete, but not tight, early in 1958.

I located air units so as to have a capability of fire intervention along the fence in less than 30 minutes and a helicopter intervention in less than an hour. Aircraft and helicopters were on 15 minute alert on each field, or on five minute alert if something was going on. Commando troops stood the same alert as the helicopter crews. It is a must--not always understood--that the ground troops be waiting just like the helicopter crews. They are not to be picked up somewhere; they have to be on alert next to the choppers. Otherwise, you lose 20, 30, 40 minutes.

I divided my area into two parts and in each I had a B-26, the strafing version with 14 or 16 machineguns, airborne all day on call. I had really permanent day air alert by B-26s in those two areas and night air alert by a Neptune with flares and bombs, plus other aircraft on 15 minute ground alert.

Combined Operations, Airborne Assault

GENERAL EZANNO: I think now we can take a typical operation. I remember one which happened in the Saida area, in late 1958, when the weather was still good. The recon aircraft had spotted numerous tracks. The sector commander confirmed that a katiba was on the move and we decided to have a go at it two days later. The area was very mountainous and practically covered with vegetation.

First we studied photos of the terrain, to define an area that could be netted by air. We did not want to give any advance notice to the enemy of what we were going to do. One of the things we found out by experience is that when you mount an operation, if the Army starts sending trucks and light armor and vehicles on the roads, the enemy knows that something is going on and if they are smart enough, they know where it will be. To avoid that, the Army and we decided whenever possible not to move a thing before the operation began. The first action would be the bombing of helicopter landing zones within the area under attack.

As I said, we first selected on a large-scale photomap the appropriate portion of terrain, so that complete interdiction of movement on the periphery could be achieved by the use of fighter-bombers or, sometimes by lightly armed aircraft like the T-6s. The best possible compromise as to the area of the operation was worked out by the Army and Air Force Commanders. The idea was that after the initial blockade of the area by air fire, the aircraft would be replaced progressively by ground troops coming from their garrisons in the vicinity. When the replacement had been completed the ground troops would begin their ground envelopment, driving or walking toward the center of the operation zone and making the net tighter and tighter.

Concerning the helicopter-borne commandos, we found it essential that troops for the first wave embark at one of the main bases, in order to have complete surprise in the operation area. The enemy could not get any information about the destination of the helicopter formations.

In brief, our idea was to have no activity at all in or even near

the operational zone until the dropping of the first bombs on the predesignated helicopter landing points within the area and the simultaneous arrival of the fighter-bombers responsible for the blockade of the area to be combed.

In the example, the first hint of the operation for the rebels was bombing of the helicopter landing zones at H-hour, about 0450 in the morning, by six B-26s with V-T fuze bombs and cluster bombs. That eliminated any snipers who might otherwise wait for the first and second choppers to land and the third one to be hovering above, and then attempt to shoot down several, perhaps one with a complete load of commandos. That is what they are doing now in Vietnam, no change.

At the same time, at H-hour, about 14 fighter-bombers, P-47s and T-6s, were flying above the area to interdict anybody trying to escape. If somebody tried to move out, the airplanes would shoot in front of him first, at him second.

The helicopters had taken off about an hour or 55 minutes earlier. They put their troops down on three landing zones within the area, from one to two minutes after the initial bombing at H-hour. The timing had to be real tight.

The troops in ground vehicles then began to move toward the operational area. We relieved the aircraft in orbit by another 14 aircraft. As soon as the troops arrived, they took positions around the area and the aircraft were sent away. The net was properly closed by ground troops around 9:00 o'clock in the morning. Until then, air surveillance and interdiction prevented anybody from getting out of the operational area.

We maintained an airborne alert of four P-47s and six T-26s on call for ground support whenever necessary. In addition, when the choppers landed to unload ground forces, they had their own very close support from armed helicopters. As soon as the last helicopter transport mission was concluded, more helicopters were equipped with guns to add to the number of armed helicopters for very close support and scouting in the canyons in the assault area.

In one spot, enemy forces with machineguns were protected by a cliff. They were spotted from the air and were attacked with no result,

because they were well protected overhead. The helicopters armed with cannon and SS-11 missiles went in and got them with no loss to us.

The armed helicopters were at the disposal of the landing zone commanders who were clearing the area from the center while those on the perimeter were pushing in. By the end of the day, we had killed 197 rebels and taken about 60 prisoners. Our own casualties were two killed and ten wounded. The results were due mainly, I think, to the action of the armed helicopters.

GENERAL MAC CLOSKEY: Did you have any armor on these choppers?

GENERAL EZANNO: We tried many many ways of armorplating the helicopters, all too heavy. In the end, a piece of very thick nylon was the best protection against ground fire. It was not too heavy; it did not change the flying qualities of the chopper; but it did provide the pilot and part of the engine with reasonable protection. It stopped ammunition up to 8 mm.

GENERAL MAC CLOSKEY: Did the crews wear flak suits or flak vests?

GENERAL EZANNO: Yes.

COLONEL ADERHOLT: I understand that you did make air strikes against the landing zones prior to the helicopters' arrival.

GENERAL EZANNO: It seems to me a must. I think there are four essential points to be followed when using helicopters. The first one applies as you fly your troops from A to B. The enemy can be anywhere; in this type of war you never know where they are. The first point is that you need what I call safe itineraries, which are flight paths over ground that is definitely held by friendly troops.

Point 2 is to fly high enough to avoid ground fire from the enemy. There is no reason, except bad weather, that a loaded helicopter should fly below about 1500 feet. They are not on reconnaissance; they are just carrying troops from Point A to Point B. Considering the terrain and the type of armament the enemy had, 1500 feet was about the minimum altitude for helicopter flight.

Point 3 is to have the closest possible cover by armed helicopters. It was achieved in Algeria after a very long fight. I am something of a stepfather of the armed helicopter, and I had a problem with my own

authorities to get it accepted and worked out. In our Air Force, the ratio is now one armed helicopter out of five, with weapons such as 20-mm cannon and two to four SS-10 or SS-11 missiles.

Point 4 is to maintain fighter-bombers immediately available on call in the target area for airborne fire support.

I don't mean that nobody is shot at or shot down when you follow these points, but you do minimize the enemy's chances against your own people.

Let me emphasize some of the tactics that are appropriate for operations such as our attack in the Saida area. First, selection of the landing zone is dictated by circumstances. You must have photographs of the landing zone available for each crew and the supporting elements. Second, the zone should be "cleaned" less than two minutes before landing. You can clean it with fighter-bombers. I prefer light bombers with V-T fuse bombs or cluster bombs. They are fine because they cut everything to pieces. They detonate high enough above ground to kill any chap with a machinegun hidden in the bush, the usual trick.

Third, I think, is scouting by the armed helicopters in the immediate vicinity of the landing zone. You clean the zone itself, but sometimes there is a canyon, a forest, or a gorge in the vicinity. Then, you rely on your armed helicopters scouting around the landing zone during the landing. They can engage anything. Of course, you also have your normal fire support on air alert somewhere in the vicinity of the operation, and you call upon them for something big.

COMMODORE WARCUP: The third point has identification problems.

GENERAL EZANNO: Well, your troops are the first ones to land in the zone, anyway.

COMMODORE WARCUP: But I presume that after a few minutes, things get a bit confused.

GENERAL EZANNO: I say scouting during the landing. During the landing, the chaps are a maximum of 50 yards from the choppers. But after that, the operation is a different story. During the landing period, I always had one or two armed helicopters scouting around when the operation and the area warranted it. Many enemies with light machineguns or Tommy guns were caught in the vicinity of the landing

area and killed by armed helicopters. You see beautifully well from an armed helicopter.

I think the fourth point, the available air support, is normal for an operation. It can come as Point 4, but it is so obvious I am not sure we need to list it here.

COMMODORE WARCUP: Did you always have two pilots in a helicopter, with one responsible for navigation?

GENERAL EZANNO: Yes, always two. That is a regulation in the French Air Force.

That is about what the beginning of a big operation was like. After that, the rest was just routine that we all know--such as the request for ground support at this point or that point, the airborne command posts with both an Air Force and Army man together whenever possible, and the rest. But I think that if the landing is done after a proper cleaning and without any prior troop movement, you ensure surprise, which is vital in this type of war. As soon as you start moving troops by a road, the enemy knows that something is going on and would be alerted. We did capture a number of enemy troops in Saida, for instance. They told us they had a sentry with high powered binoculars about ten kilometers from Saida, just watching the road leading out of town. If he saw light armor and trucks going out, he would give the word to everybody else by smoke signal and everyone would vanish.

COLONEL ADERHOLT: As I understand it, you detected, you isolated, you prepared the target by air, and then you started your ground operation?

GENERAL EZANNO: That is right. It involved putting the air commandos inside and ground troops moving in from the outside to close the net.

GENERAL MAC CLOSKEY: Were these air commandos Army troops?

GENERAL EZANNO: They were mainly ground troops. We also used our own air commandos, who were Air Force types trained for that job. Most of the time our Army friends provided their crack troops. Sometimes they were French infantry, many times they were paratroopers and many times they were Foreign Legion. They were all good. They

were perfect. That was the hard core of the battle. The other troops coming around the area, netting it and pushing toward the center, were not always of the same caliber. The ones who were injected right in the center of the operational, the hot, area were crack troops whenever possible, of course.

SQD. LEADER TWIGG: What sort of control did you have over the armed helicopters during this landing stage and immediately after it?

GENERAL EZANNO: The leader of the helicopter formation was the man responsible for the landing phase. We had a lot of problems with that, you are right. We decided to give the leader of the helicopter formation responsibility when approaching to land. That was done before we had the armed helicopter. The leader of the helicopter formation can call upon fire support from upstairs.

SQD. LEADER TWIGG: What was the technique for the transport helicopters to get out of the area after they have the troops on the ground? Did they get out as quickly as possible, or did they stay to carry out further moves?

GENERAL EZANNO: The pattern would fit the terrain. Sometimes they could not make a right turn because they might be under fire from a hill crest or something like that. The landing was planned in detail ahead of time--the selection of the zone, the escape route, the alternate landing zone if something went wrong or somebody crashed on the landing zone and so on. That was worked out by the helicopter leader and the air support formation leader. The main difficulty at the beginning was to have the landing exactly two minutes after the last bomb. Otherwise the rebels sent suicide chaps in with light machineguns to shoot down the helicopters. Our losses in helicopters after we used the armed helicopters to clear the area went down practically to nil. We did have helicopters shot down when they were picking up wounded practically in the battle area. We lost two, maybe, in my area; that is all.

COLONEL ADERHOLT: What was the ratio of armed helicopters to total number of helicopters? I believe you mentioned one in five.

GENERAL EZANNO: One armed out of five. That is four cargo, one armed. But I must add one thing--the armament I had on my choppers

was removable. It took about 14 to 20 minutes to put it on with four big bolts or take it out. That permitted us to arm more helicopters if we wanted more because, for instance, the ceiling was very low and conventional air support was not possible.

MR. SMITH: What was this armament?

GENERAL EZANNO: At first we had only 50 caliber available. It was not an explosive shell, and you don't pretend to hit each man, one by one. You need a 10- or 15-foot lethal area. Maybe three months later we switched to 20-mm.

MR. SMITH: How many guns per helicopter?

GENERAL EZANNO: One. Actually, we had one plus a light machine-gun mounted on the other side, just to help. It was not important.

COMMODORE WARCUP: And an SS-11 or alternative. You mentioned the SS-11.

GENERAL EZANNO: It was added. In an area, for instance, where we had cliffs and caves, caverns and things like that, we were using SS-10s or SS-11s. They were used in aircraft before. There are two supports above the wheels. We had four SS-10s or sometimes SS-11s available on the chopper, in addition to the cannon. That was not standard--it varied with the areas. For instance, in the mountains there were so many caves in the cliffs, we had to use the missiles.

MR. PETERSON: General, did you have napalm for these operations?

GENERAL EZANNO: Yes, it was pretty much standard. But in many cases, I think the armed helicopter in the deep canyon made more destruction than the napalm.

GENERAL ALISON: Did you ever use depth charges in canyons?

GENERAL EZANNO: No. We used bombs with 15-second delayed fuzing until we ran out of them. We used, on many occasions, one to three-hour delay fuzing against rebel regroupment areas. We would bomb them before nightfall and hope that the enemy would come in during the night and be blown up. That had a morale effect, anyway. Just like the bombing in front of the fence.

GENERAL ALISON: What kind of bombs were used?

GENERAL EZANNO: Five-hundred pounders that would bury themselves in the ground.

GENERAL ALISON: The Japanese did that against us. They put them in our runways, sometimes with 24-hour delay.

GENERAL EZANNO: They were using mines against our runways and the results were the same. Each morning we had to sweep the runways in the whole south area to clear the airfields before takeoffs.

GENERAL ALISON: We kept operating over the delay bombs, because there was only a small chance that one of them would go off when an airplane was in the same area.

GENERAL EZANNO: Some of our fields were unguarded. We guarded the aircraft but not the landing strips. Sometimes they put mines on them, so usually we cleared the field before first takeoff.

COLONEL SAMPSON: Do I understand that you had no political constraints in your choice of ordnance?

GENERAL EZANNO: Well, I had some, but we managed.

COLONEL ADERHOLT: General, I have two questions on subjects we seem to have missed. First, did you use fighter cover for protection of ground columns? If so, what were the results?

GENERAL EZANNO: During my period of command we had hundreds of convoys, and we always gave them protection. I had only two convoys attacked when they had air cover. One was down south in a very bad area, in a canyon. The other was near the gate of a small city, Muscara, where the road is down in the riverbed. The convoy was late, and the attack came at dusk.

COLONEL ADERHOLT: Second, if you had STOL aircraft, would this not have given you a lot more flexibility?

GENERAL EZANNO: That is the gap I tried to fill with my own helicopters, in fact. The job I did with the helicopter is the same type that would be done with a vertical takeoff or short takeoff aircraft, provided it also could carry troops. An armed helicopter is just a temporary addition to the normal cargo helicopter, nothing more. I am not recommending a permanently armed helicopter, like a fighter aircraft with a single pilot. I think it would be useful in many cases, but I prefer the ability to put on and take off the gun platform in a short time, say five or seven minutes.

But the STOL or short takeoff aircraft could do only part of the tasks the chopper can accomplish. The chopper is not as vulnerable as some people say. It is just vulnerable because people don't follow the rules when flying them.

COMMODORE WARCUP: I would have thought in this sort of situation the armed helicopter could do things the STOL couldn't possibly do. In your description of the helicopter landing zone, armed helicopters have the ability to sit over your troops and pick out targets.

GENERAL EZANNO: That is true. The enemy can have, for instance, a machinegun nest and next to it three or four real brave men with Tommy guns and rifles. You have to make many passes to destroy them from the air with a regular aircraft. With a chopper, you take the strong point as the center of a large orbit. You keep flying around it at an altitude of about fifteen hundred feet.

When detected and identified, that machinegun nest is dead with a good armed helicopter. Inexperienced helicopter pilots want to come down and shoot from 150 or 200 feet. That is not the answer at all.

The tendency of the pilot, being too hot, is to go too close to the target, which is unnecessary, and the results are not better. You don't have better results when you are 200 feet from the target than when you are about 2000 feet from the target, with a good 20-mm cannon. The answer is to stay high and shoot far. Then you have it. That you can't do with an aircraft. This orbital firing was awfully deadly. In many instances, it was used very successfully without any losses.

Also, the fallacious tendency was to try to equip choppers with forward armament instead of side armament--we changed that because our experience proved that was no good.

GENERAL ALISON: Your 20-mm cannon fired out the side of the helicopter and not down the axis of the flight?

GENERAL EZANNO: Correct. Tell me, when do you see your enemy ahead of you in this type of warfare? You see him from above or sideways--that is why we discarded the axial armament. You must have lateral armament. That is why the axial armament in a helicopter is no good. The same applied to rockets. We tried all that.

COMMODORE WARCUP: The 20-mm would be on a simple pivot, would it?

GENERAL EZANNO: Just a simple gun support. The only problem we had was to find a mobile gun support to absorb the vibration. We used one designed by one of the Fleet Air Arm officers who had been an engineer in his early days in the Navy. That gun support gave practically no vibration to the aircraft. It absorbed everything. The gun support is the only snag in the armed helicopter business.

COLONEL ADERHOLT: There is a very light 40-mm soft projectile, with little recoil and a good lethal radius. It explodes when it hits anything.

GENERAL EZANNO: That would be all right. That is very good action. I think most of the unfortunate experiences in armed helicopters are due to people thinking that they will get better results by getting close to the target, which is not true at all. That is the normal reaction of a fighter pilot, but it is not a good use of this weapon.

One other type of operation which I did not touch upon occurred six or seven times in my area. We needed information on an area, so what we did was to send 14 helicopters without any protection except armed helicopters and land them by surprise in a rebel-held village. We caught whomever we could and took them out in the helicopters. Once we brought back and interrogated 87 people from two different places. We released probably sixty of them and 27 of them were of some value and willing to talk. Thus, we obtained information without any preparation, any cover, nothing at all, just plain surprise and armed helicopters to help. That can be done.

GENERAL ALISON: What kind of information would the civilian population give you concerning these bands?

GENERAL EZANNO: These people were in an area not controlled by our troops because of lack of roads. That was part of the big operation mounted by General Challe. They gave some information for the coming operation.

GENERAL ALISON: At the time of the political settlement, were the terrorist activities on the increase or the decrease?

COLONEL LAURE: Certainly the decrease.

GENERAL EZANNO: Decreased. I must mention one thing about the other activities we all had in Algeria. The Air Force was not as deeply involved in this pacification business as the Army, of course, although I had 67 of my NCOs and airmen teaching in the local schools. The Air Force doctors were giving consultation to the native people. My wife was looking after 72 young Moslem girls all day long, to teach them how to live properly. That was a sort of external activity which has nothing to do with operations but is worthwhile mentioning.

AIR TRANSPORT

MAJOR FERRANDO: I do not feel it necessary to describe a specific air transport operation, since the missions carried out during the Algerian War were all conducted in much the same way. Moreover, it was the exception when the Air Transport Command conducted big operations by itself. I shall outline what we shall call the air transport organization and their methods of doing the job.

We had, and still have, an Air Transport Command in Paris called GMMTA, and we had in Algiers a kind of subordinate Air Transport Command. The latter was under the operational command of the Fifth Air Region.

We had three squadrons, one in Blida, about 30 miles south-west of Algiers, and two located in Algiers. Each squadron had 16 Noratlas aircraft, 20 crews, and a total of around 400 men. Each squadron took care of its own maintenance. The Noratlas had two Hercules 4,000 horsepower engines, a cruising speed of 150 knots, a maximum takeoff weight of around 40,000 lb, an empty weight around 32,000 lb. Its minimum runway for takeoff is about 1300 yards, and it will carry 32 seated passengers or 20-32 paratroops with their individual armament. Approach landing speed was 110 knots. I would say it could use 75 per cent of the airfields in Algeria.

In the squadrons we had two degrees of alert. The first, for what we can call a normal period, included (a) during the night, one crew on one-hour alert, three crews on 3-hour alert, and 3 crews on

6-hour alert; (b) during the day, a minimum of seven crews available for one-hour takeoff. It was useless to keep more crews on alert because of the time required for paratroops to reach the air base, preparation of the mission, preparation of the aircraft, briefing, and so on. Then we had what we can call an emergency period, when the number of crews requested would stand by day and night on one-hour alert on the base.

Large scale, combined operations requiring more than ten aircraft--involving two or three squadrons-- normally required a minimum of 12 hours' notice.

Now I will explain our method for carrying out a medium scale, combined operation. We would receive the mission orders from the Air Tactical Command through the Sub-Air Transport Command, where we would go, generally with the paratroop commanders, to a first briefing on the mission, including the scope, place, number of men to be airlifted, takeoff time, aircraft loading, and so on. Then, we would collect the crew members and have a squadron briefing on mission details such as routes, alternative airfields, gathering points, type of formation, and so on. Loading the aircraft was in charge of the ground troops. Then would come the takeoff. Those were the main points in preparation of the mission.

The missions usually were quite simple, but we did have some problems. We did not have to cope with an enemy air defense except for perhaps four or five cases in five years. In Algeria the weather factor was not very important, since the bad weather season is only around four months. Only about five to eight per cent of the missions had to be cancelled because of weather during my two-year tour of command.

Civilian air traffic over the country was never considered an obstacle. This traffic was quite light and we used a special flight plan, called an Operational Flight Plan, which gave us high priority for using the air space.

Our main problem was to keep the crews, especially the pilots, in a high degree of operational training. The Algerian affair was not the same kind of fight for us transport people that it was for bomber and fighter squadrons. We had a normal peacetime transport mission,

which represented more than 50 per cent of the task we had to assume. The average monthly flight time was between 50 and 70 hours for each crew, of which only about five hours were for training. Also, we carried out two types of combat missions; first, airlift of troops or various loads from Point A to Point B as quickly as possible; second, dropping paratroops anywhere in the country as requested. One problem during these operations was lack at some fields of adequate equipment for bad weather landing. Another problem was the accuracy in navigation and timing required for landing troops that came from different points of departure. I remember one operation in which we had six aircraft loads of paratroops to be picked up in Algiers, six aircraft to be loaded in Blida, and six in Sidi-Bel-Abbes. We had to group the 18 aircraft over a beacon, at night, and to arrive at a precise time over the drop zone. For those among you who know this kind of problem, it is not quite simple.

This required a constant, high degree of training, not always easy to take care of, not only for the reasons I mentioned above, but also, and this seems to me very important, because of a psychological factor. I think that you can't ask a transport pilot to be a peacetime pilot one day, to make a normal trip say from Algiers to Paris, and the day after to be a gallant man, put a helmet on his head and go over the battlefield. Surely, you can ask him to do that, but not without taking risks. Our major problem was to limit those risks as much as possible.

COLONEL ADERHOLT: You must have had quite a resupply problem. What type of aerial delivery system did you use in the aircraft, roller conveyors, side-door delivery, or tail delivery?

MAJOR FERRANDO: We used rollers and tail delivery.

COLONEL ADERHOLT: And did you make any blind drops, such as on a beacon?

MAJOR FERRANDO: No, we never did that.

COLONEL ADERHOLT: In mountain areas, where it was not possible to get to an acceptable drop altitude, did you use any type of delay system to reduce the wind factor?

MAJOR FERRANDO: I do not remember that we used any kind of delay system. We just dropped as low as possible, sometimes at 250 ft. This was our way to do the job. The paratroops had delay systems, but I could not tell you exactly why they did not like to use them. They preferred us to go lower.

COLONEL ADERHOLT: I know you had swiftly moving troops to be resupplied. How did you locate them? Did they have a beacon, a navigational aid?

MAJOR FERRANDO: We used the Rebecca system, a mobile Rebecca beacon. They had about a 45-mi range, as I remember.

COLONEL ADERHOLT: In support of big operations, would you use palletized cargo packages with big parachutes, or small packages and small parachutes?

MAJOR FERRANDO: It depended on the mission. We used both of them. Sometimes we dropped jeeps and big materials; sometimes food, any kind of supplies, in small packages.

GENERAL MAC CLOSKEY: Did you use free falls, too?

MAJOR FERRANDO: Yes, we used to make some free drops down south in the Sahara.

DRA-EL-MIZAN SECTOR, NORTHCENTRAL ALGERIA

GENERAL GIROULT: I can give you some details on the sector of Dra-el-Mizan in the heart of Kabylia, where from 1958 to 1960 I was civil and military commander. It was a mountainous sector, not very large (only 50 kilometers from west to east and 20 kilometers from north to south), but rather crowded, for Algeria, with a population of 120,000 inhabitants and a density of 120 persons per square kilometer. The people gave strong support and provided many agents to the rebels.

In my department in the high Kabylia, we had seven katibas and a large number of commandos. Two katibas very often were in the two mountainous areas of this sector. Between those mountainous areas there was plain and a good road to move my units. Those katibas in Kabylia were recruited exclusively among the Kabyles. It was a question of politics; the Kabyles, generally speaking, do not like the Arabs.

The rebellion in Kabylia was conducted by Kabyles. Today, with Ben Bella, there is still a Kabyle problem.

To give an idea of the balance of forces at sector level, I had the following situation in the spring of 1958 in my own sector. On the enemy side, there were two katibas (180 to 200 men), six commandos (90 men), and 300 auxiliary forces grouped under OPA (Organization Political and Administrative). The OPA was responsible for political and administrative control of the population and for providing Mousseblines needed by the regulars. The enemy total strength was approximately 600 Fellagahs.

My own forces consisted of a mountain brigade with a headquarters company and three battalions (2100 regulars and about 400 Harkis) for a total of 2500. There were, then, 600 Fellagahs on one side and 2500 men on the other. But the 600 were moving among 120,000 friendly Kablyes who provided much information and support. I had poor information on my side.

Our objectives were twofold. The first was to destroy the katibas and commandos by day and night tactical operations of my own units, reinforced from time to time by other forces and air support.

As General Ezanno mentioned, the climate in this area is very unstable. In a few hours it can change completely--you may have a very nice morning at 7 o'clock, and four hours later a storm with low clouds and strong winds. So it was very difficult to preplan air support for an operation. We would first plan the operation for only our own forces, and then determine what use could be made of air support if the weather were right. Usually, we had an observation plane, and could get T-6s for close support strikes and helicopters to bring more troops as needed into the mountains.

It was war, we had to fight. To give you an idea, one day we destroyed three katibas at the same time. We were fortunate to have information from Kabyles, telling us there was a big rebel meeting in the mountains. The commanding general in Kabylia decided to put a net all around the area in a night operation.

At daylight, we were able to have all our people locking the area and closing in on the enemy. We had asked the Air Force for fire support,

and they used a lot of napalm. At the end of the operation we found something like three hundred soldiers completely burned. The rebel chief, Amirouche, had been there, but he managed to escape.

GENERAL ALISON: Normally, were you able to distinguish the rebel forces from the civilian population?

GENERAL GIROULT: Yes, the rebel forces were in katibas, in uniform. This day we destroyed three of the seven katibas in those mountains. They succeeded in organizing new katibas some time after.

The biggest operation of General Challe during the summer of 1959 was to bring all the general reserve into Kabylia and to stay a long time on the top of the mountains, everywhere, leaving the rebels no more refuge. At first we saw nothing, because the rebels were underground in their hideouts. But after five or six days, they were obliged to come out for water and food. Then we were able to deal with them very efficiently. After two months, we had destroyed the bulk of their katibas and they were obliged to split into small commandos to survive. The mobile commandos in this large mountain area were very efficient for sabotage but less valuable for Amirouche's cause. Amirouche sought to capture a French post defended by a company, but he was not able to do it. In my sector, I used every day a 105 howitzer battery to shoot at some rebels some place, or to protect some post by night.

After two years of operation with my brigade, I had 120 soldiers killed and 350 wounded. On the other side, I destroyed 750 Fellagahs, and captured one thousand Mousseblines, as well as enough weapons of all kinds to equip a battalion.

The second mission in my sector, and the more important one for me, was to pacify and administer the population simultaneously with the tactical operations. This aspect is as important as the destruction of the rebel bands in this type of war, and its cost is high for the Army.

To give you an idea, these figures apply for 1959. For medical aid, we had 600 military doctors and 250 nurses taking care of natives in the most remote villages, giving an average of 950,000 consultations per month. It was a wonderful job.

For education, we had 750 schools run by the Army with 1000 soldiers as teachers and 60,000 Moslem pupils. These were in the most remote villages, but not in the large towns.

For protection of the people, we were obliged to build new villages and regroup a part of the population, as you do now in South Vietnam. They had been spread in many tiny mountain villages, impossible to control 24 hours a day. We abandoned certain areas, which we called forbidden areas, and moved part of the population to the new villages protected by the Army. By 1959 we had regrouped 825,000 persons.

For administration of the population, we had 16 officers and NCOs in special sections in the most remote areas.

Thus, the Army undertook numerous tasks: medical, administrative, police, schools, youth organization, and Moslem women organizations. This may be surprising in the military field, but it is a must in subversive warfare. The primary objective is to win the population itself. It is worthwhile to remember.

ADRAR SECTOR, WESTERN DESERT

COLONEL LAURE: Now we will consider things from the Army point of view and from a lower echelon. I apologize for these maps. The Pentagon was unable to provide me proper maps, which undoubtedly proves that the New Frontier administration has very pacific intentions toward Algeria

I had the privilege to command two sectors, one the Adrar Sector in the western desert, (Fig. 5), and the other the Bone Sector on the seaside of Algeria (Fig. 6). I will point out the different aspects of the problems in both sectors, especially the different possibilities for air support.

The first case, in the Sahara, was proof of the primary of air control in desert operations. For the second one (where I was in command in the last years of the Algerian problem) air was a little less positive.

I must underline that certain political events took place in Algeria beginning May 1958 which compelled the sector commanders, like

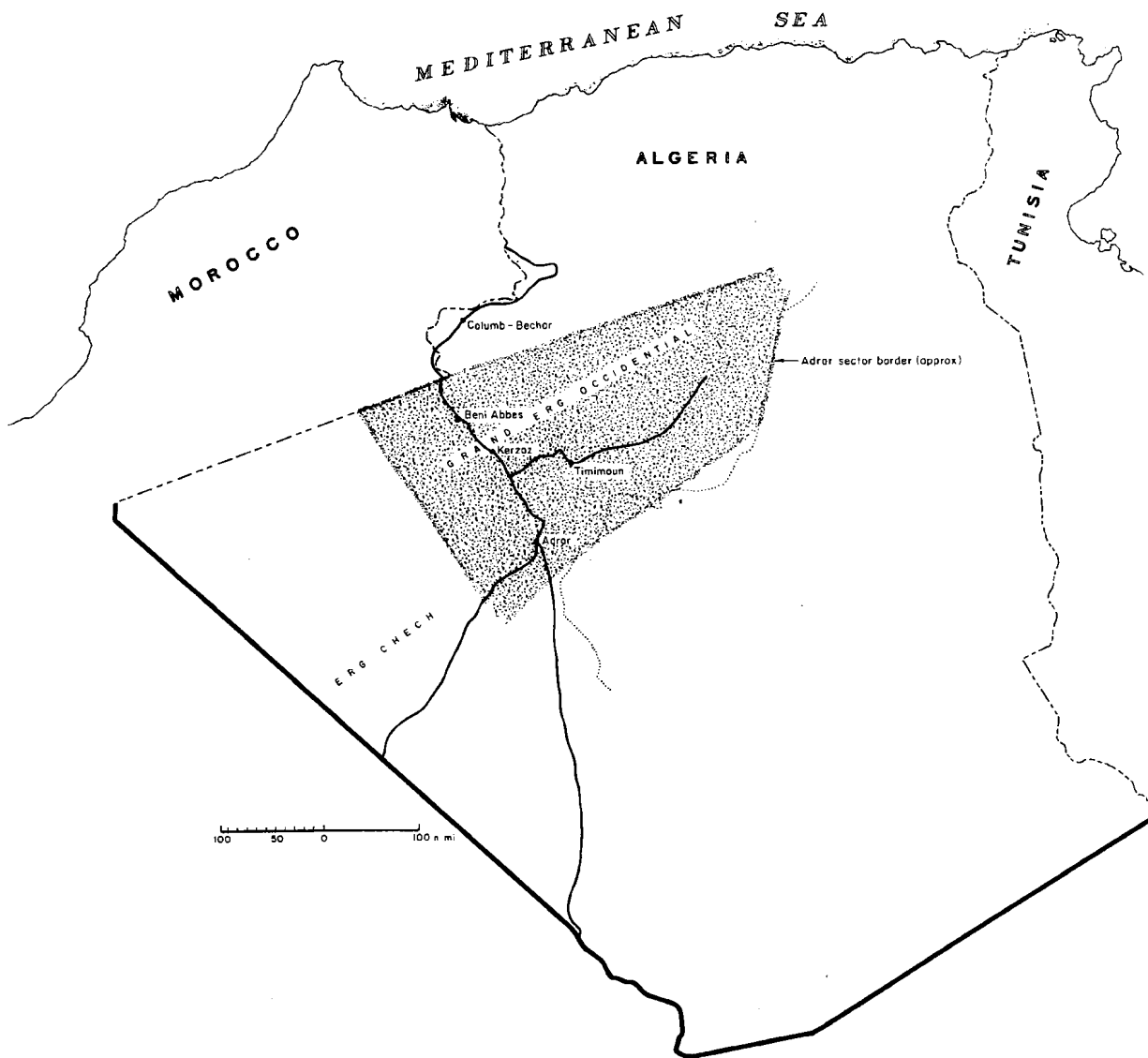


Fig. 5 — Adrar sector

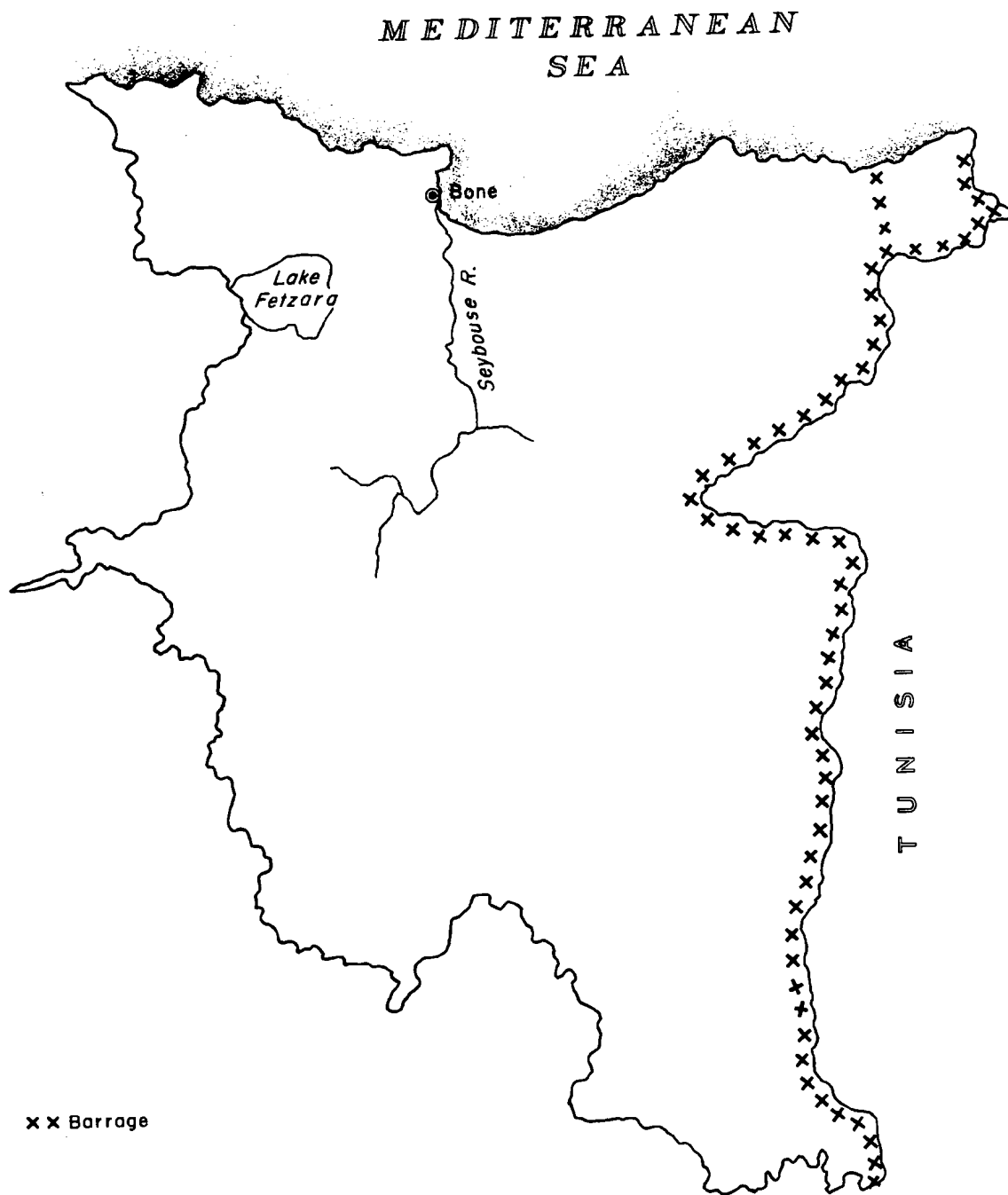


Fig. 6 — Bone sector

the zone commanders, to exercise full powers in political, administrative, judicial and military fields. This was essential, since the enemy's military chiefs also had complete political and judicial power.

The first sector, Adrar, is about 600 km north to south and about the same from west to east. It includes huge sand dunes, some three hundred feet high. In the Grand Erg Occidental are several wells, some shallow and some about 300 ft deep.

This flat area offers, as does the whole Sahara region, good airfields: one, Adrar, had a hard top surface, but the others, at Beni-Abbes, Timimoun, Kerzez could be used by DC-3 aircraft. Airfields could be built in about three weeks. The weather was very dry and hot during seven months and pretty cold in winter. There was practically no rain, but very frequently wind and sand could prevent any flight between ten o'clock in the morning and sunset. A sandstorm might last from three to nine days.

This sector was created following some very unhappy events. In October 1958, the only camel unit in the area made a halt at Hassi Saka in the South of the Grand Erg. It included nine European and 120 Moslem soldiers and 200 camels. One day at sunset the Moslem soldiers attacked the European officers and NCOs, cut their throats, and disappeared into the erg with the pack camels. Twenty days later the Moslem group ambushed an oil-drilling team from a subsidiary of the Shell Company, with an escort of the Foreign Legion at the southern limit of the erg. Their jeeps were set on fire; all the Legionnaires and all but two of the Europeans were killed. The two survivors arrived in Timimoun and threw panic into this very small village. It caused a big shock in France and Algeria. Until then, the Sahara had been considered a golden paradise, untouched by the FLN. The French had invested a lot of money in government-controlled oil shares, and foreign capital--chiefly American--was ready to invest in oil research.

General Salan considered it his duty to retaliate with all his power. He chose his best soldier, Colonel Bigeard, and sent him there with the Third Paratroop Regiment. Bigeard had such a reputation that he could bypass every commander and get everything he wished. It

was an awkward situation for the zone commander. Bigeard requested full freedom of action, and several helicopters.

GENERAL EZANNO: I sent 34 helicopters down for him.

COLONEL LAURE: He requested also five Noratlas transports and several reconnaissance planes to be based at Timimoun airfield. For many weeks these aircraft scanned the Grand Erg without result. One day an observer reported an unusual bush at the summit of a dune. Bigeard quickly dropped five companies of paratroops around the suspected rebel hide-out and attacked 60 "djichers," well armed with the Tommy guns and the light machineguns of the camel unit. The enemy was liquidated within two hours, but with some losses on our side. Documents were captured by which other enemy units were located further to the north. A new fight took place ten days later, with equal success. Three-fifths of the djich had been destroyed by that time, but the soldiers of Bigeard were exhausted. The aircraft badly needed overhaul, and the helicopters were completely worn out by the sand.

GENERAL EZANNO: They could not cope with the sand. Seven out of thirty-four helicopters were still in flying condition.

COLONEL LAURE: By that time, Bigeard and his men were fed up with the sand. Christmas was very near. I was told to take the command, but without any means. I went to the Grand Erg to meet Bigeard in the midst of a sandstorm. He welcomed me under his tent, bitten by the wind. Coffee was warming up over a fire of camel dung.

Fortunately, General Dulac, the Chief of Staff of General Salan, came to Timimoun three days later. I requested three semi-static companies to keep close contact with the population at the oases, three companies equipped with jeeps to penetrate into the erg, four planes with an air command post, and money to build the required infrastructure, chiefly airfields. General Dulac approved my requests, saying I would receive everything as soon as possible.

My first effort was to improve the control of the Grand Erg by means of Army detachments supported by air patrols. Army patrols, moving on foot with some intractable, requisitioned pack camels, penetrated into the erg to blow up most of the wells. They were observed, controlled, and supplied every day from the air, regardless

of weather conditions, since it was a matter of life or death for the soldiers. Later on, the task was given to jeep patrols, but that proved to be very difficult. One jeep platoon, with fifteen jeeps, needed 28 days to cross the Grand Erg from Timimoun to Beni-Abbes. This could not have been done without air support. Selection of routes was easier from the air. The platoon received spare parts, water, and fuel from the air, on some occasions from a Junker aircraft landed on improvised runways.

The half-static companies took on a political task to register and photograph thousands of persons in the area. They also kept in close touch with the population, improving their confidence in France. At the referendum in September 1958, almost 100 per cent of the voters voted for the integration of the Sahara with France. M. Lejeune, Minister of the Sahara, wanted all the female Moslem population of the Sahara to vote in the referendum. It was impossible to organize the vote for the Moslem women. Normally there is absolutely no female European in this area from May to October, and only five in the winter. Therefore, I requested that 40 European girls, as nice as possible, be sent to control the voting booths. Forty very nice girls came from France and conquered not only the Sahara and its voters, but also the lonely French officers.

I had only one failure with air support during my time of command. An army patrol had penetrated deeply in the very difficult Erg Cherche, where there were very few wells. The maps were like these in the Pentagon, not up to date. I heard by radio that the detachment had lost its way and was without water, after having exhausted all the water from the radiators. I assure you that we were worried. I immediately summoned three air crews, two from Timimoun under my command and another one from Colomb-Bechar, for an emergency search. It was carried out for a night and a day, without success, proving that even in the Sahara reconnaissance is sometimes very difficult. The army detachment was spotted and saved at the last minute by three converging jeep detachments

I had very few fights in this sector, but I believe that with less dynamism and activity on the part of my Grand Erg air units, this essential part of the Sahara would have been controlled sooner or later by the FLN. I am certain nothing could have been accomplished without air support.

BONE SECTOR, EASTERN SEACOAST

COLONEL LAURE: I come now to the second sector, the Bone sector (Fig. 6). Things were different there. The sector is comparatively small, only about 50 km north to south and about 50 or 60 km from east to west. The principal city, Bone, has about 150,000 people, of which 40,000 are European. There are several small towns of about 10,000 people, about one-third European and two-thirds Moslem. Bone is on the edge of a rich and fertile plain with prosperous citrus, grape, tobacco, and cotton farms belonging to corporations and employing about 150 workers each.

The rest of the sector is mountainous. There are some forests, but chiefly thickets of what we call "Lentisques," very thick bushes about one to two meters high that provided excellent concealment for the guerrillas. Soldiers could pass within one meter of a Fellagah and never know he was there.

Lake Fetzara is at the center. To the East, a railway and road along the Seybouse River are used to bring the iron ore and phosphates from the south to Bone harbor.

The sector's total population was 250,000 people, including about 100,000 rural people. The East was the most populated and probably the less productive part of Algeria; the standard of living was low. Perhaps that is the reason the rebellion began in the eastern part of the country.

Mission and Forces

COLONEL LAURE: My first mission in the sector was to prevent the crossing of the barrage on the east. It was very important for psychological reasons to prove that the barrage was absolutely tight.

The second mission was to protect everything in the sector--mainly the people, both European and Moslem. There were at least 40 garrisons in the sector to protect the population. We had also to protect the lines of communication. Some of them were very important. We had many industrial installations, and many other things.

Our third mission was to eliminate the terrorists in the urban area and to be as active as possible against the rebels in the rural area, employing the means of the sector and, from time to time, temporary assistance from other zones.

I had, first, my own regiment, composed of Senegales and Europeans. Also, I had at my disposal--but did not regularly command--one regiment of light armored cavalry, 600 Harkis (Moslem auxiliaries), four security companies and mobile gendarmerie; in brief, 3500 men. In case of emergency, such as a barrage crossing, I could call upon every available unit, including the zone commander's personal staff. Every one was obligated, with all available cars, to take part in a netting operation at the barrage.

For air support, we used T-6s for routine patrols, and fire support when required; from time to time a helicopter detachment; and sometimes, B-26s for bombing support.

Operations

COLONEL LAURE: I had about 50 km of the barrage to control in my sector. The fence was constituted chiefly of barbed wire entanglements, with mines in front, inside, or in the rear, according to the terrain. The width was about 20 to 30 meters. There were electric stations every 10 km to provide current for the barbed wire. Stations were manned by the engineer corps, averaging three or four people per station. Their function was to sound the alarm, by means of the electric system, telephones, and other equipment. I assure you an alarm was not amusing for the infantry; patrols were intensified and everybody, from the individual soldier up to the general commanding the zone, was put under alert. We had about one night like that every week; nevertheless, it was a very favorable period. As already stated, there was no large penetration after early 1959.

Every month new devices were added to the fence, and some parts of the fence were doubled. There were radar systems and lights for about two hundred kilometers. General Crepir, the commander-in-chief, and General Ailleret, the zone commander, came from a technical school and were very keen to improve the technical efficiency of the fence. They liked those devices and were always inventing something new. The cost of the fence was, of course, commensurate with the cleverness of the generals!

Normally, the barrage was controlled by small units. Five or six companies were deployed along the barrage in my sector, about six to eight kilometers apart, to provide routine surveillance. We had a system of mobile surveillance at night with light armored cars, scout cars, or light tanks. It was an exhausting task with tremendous responsibility.

As soon as there was an alarm--confirmed by tracks, cut barbed wire, or other means--we launched preplanned operations to lock in the enemies suspected to have crossed the barrage. Generally, the barrage was crossed at night. It was difficult to determine exactly the time of a crossing and just how far the enemy had penetrated our positions since the crossing. Therefore, we made a netting operation, sometimes of a large area, to contain the enemy and to have a chance to catch and kill them after dawn. The first, and most difficult thing was to find the rebels. Every available car was rushed to a preassigned location in the area, with headlights pointed in a planned direction to detect any possible sign of rebel activity. We had, too, a Neptune airplane on continuous patrol along the barrage flying north and south. This could be summoned to launch flares. At dawn, these actions were reinforced by units from other areas.

That was the general defense system for the fence. Control and planning was done centrally, with continual improvement. The initial fence in eastern Algeria, named Line Moric, was doubled later by Line Challe. They ran a few miles apart for 600 miles.

I shall not enlarge on the mission of protecting the population and infrastructure. It followed the traditional roles.

The third mission of counter guerrilla was the largest job for the sector commander, always with too few people for the mission. I shall dwell chiefly on the missions given to the air elements.

From the Army point of view, there were three types of operations: the routine operation of small units, generally platoon patrol, the battalion size operation, and preplanned large operations.

The enemy numbered about 600 when I took command at the beginning of 1959. They were dispersed in units smaller than a katiba. We faced groups of five or ten people (sometimes up to twenty), who depended upon villages--what you call strategic hamlets--for their maintenance. In these villages, some covert agents called "gendarmes" assisted the rebels in obtaining support, intelligence, food, clothing, medicine, etc. The Fellagahs themselves operated in groups of about 12 to 15 people for sabotage, ambush, etc.

The third category of rebels were the terrorists in the city of Bone. They had their hideouts in the mountains about one mile from Bone, and would enter town just after dark. About half of the rebels were armed with Tommy guns, the others with rifles of different origins.

Our chief problem was to get information needed to set ambushes on terrorist routes of communication. The proper places for ambushes were determined after long study of terrorist habits and documents. Probably because they were dispersed, they wrote many documents, which we would collect, sift, and interpret. After a few months, we would have a rather good idea of their habits. It was the same in Indochina.

At this period, I think the small night ambush, generally with booby traps, was probably the best method of operation against the dispersed rebels. There were other methods if we knew of the existence of rebels without accurately knowing their location. In that case eight to ten companies were quickly deployed around the suspected area, and with the help of observation aircraft, the terrain was methodically searched. Such operations were launched by surprise and their success depended largely on the ability of air observers to control the movements of ground detachments.

There were also preplanned operations at the sector and zone levels. The forces engaged were much larger and, as a result, surprise was very seldom achieved. Such operations were generally disappointing.

Air reconnaissance was of first importance to the ground forces. It was planned in tight liaison with our G-2, and in some cases, results were surprising. An example was the recovery of a rifle by a T-6. A T-6 observer noticed three or four people he thought were Fellagahs with rifles. The pilot dived, halting the Fellagahs, and one of them threw away his rifle. The pilot asked by radio for a helicopter, which under the protection of the T-6 captured the rifle but not the Fellagah. The crews were very proud of this. This is what you call a unilateral operation.

We also had air cover to protect convoys against ambush on some very dangerous routes. In battalion size operations, we always requested an observation plane. Often, the observer assumed command of the operation, since he alone could observe the whole operation and the terrain. It was more difficult for a battalion commander on the ground to control all his units, to organize a parallel march of different elements, and to know exactly where everyone was.

It was possible for us to get air fire support very quickly. An example of a successful sequence of operations began about 6:00 a.m. when a platoon patrol near Bone made contact with two rebels. One of them was killed; the other was captured, with an important document. At the request of the patrol commander, the battalion intelligence officer was sent out by helicopter. He interpreted the document, learning that seven rebels were hiding in the attic of a nearby farmhouse. The patrol commander--without my knowledge, because I learned of this three-quarters of an hour later--gathered his dispersed element, surrounded the farm, asked for immediate support from a T-6. The T-6 gave full support to the operation. One rebel escaped, but the others were killed or wounded. In this hideout were other documents telling us of another farm with another group of 12 people. The same type of operation was again organized, with the same success and with T-6 support. This demonstrated, first, the value of initiative on the part of small echelons, second, the importance of the intelligence officer, and third, the effectiveness of a well-planned, small-scale operation, quickly launched and with air fire support, against guerrillas. In large operations there would be noise and many signs of agitation on

our side, such as dust observable from long distances, delays in positioning of units, and large numbers of moving trucks. The big operations were generally inefficient at this stage--I repeat, at this stage--of guerrilla warfare.

I stayed in this sector 16 months. The results during that period were 406 rebels killed, 371 weapons taken, 671 terrorists or sympathizers put out of action, and 18 new villages created.

In conclusion, I have given you only a rough picture of the military activities of a sector commander. The work of our administrative or political deputy was very important for regrouping of population, assistance to be given to the very poor, control of food supplies to keep them from rebels, supervision of new Moslem elites and their political education in special centers, and political operations such as elections and referendums. I should like to stress the fact that air support was not as essential in the Bone sector in this period as it was in other sectors and at periods when rebels were less disorganized. Nevertheless, it was useful.

The chief factor among many was that of the human element. In my opinion, counter guerrilla action within a sector requires:

- 1) the sector commander meet at least once a week with his subordinates to evaluate all the intelligence collected, to find new ways of action, and to reorient his subordinates--in brief, coordination and stimulation
- 2) leaders at lower levels that are dynamic and dedicated and always in search of new stratagems
- 3) soldiers that know the habits of the country, and if possible, are natives of it. This is true even for air observers. I used a Requeibat tribesman as a T-6 observer in part of the Sahara. Requeibats are nomads and they have very acute vision. This man was splendid as an observer; at low altitude he could recognize anybody. Local people can be used as air observers if they are properly trained
- 4) flying observers that have complete knowledge of Army ground methods and problems
- 5) Army and Air Force units at every level have intelligence, intelligence, and still more intelligence--I mean information, intelligence in the British meaning.

Counter guerrilla war is a combined Air-Army problem requiring a lot of imagination and cooperation--in other words, a human problem rather than a technical problem. This is my opinion after spending four years in guerrilla warfare and three others in Southeast Asia, and I think I am an air-minded Army officer.

Barrage

MR. PETERSON: Colonel Laure, I am very interested in the costs for putting in and maintaining this barrage.

COLONEL LAURE: I have a rough idea, because there was a project of surrounding a mountainous area by another fence. It seems to me that about 40 km cost about 200 million francs, half a million dollars at the time, but without all the devices put in this fence.

GENERAL EZANNO: The barrage, the fence, differed according to the terrain. On Colonel Laure's side, they had a single barrage with additions now and again. In the northern part of my area, where it was very hilly, the barrage was as he described it. On the western plateau we had two rows 25 ft apart, an electric fence in the center, ground radars 25 to 40 km apart, plus very powerful lighting in some areas, and all the booby traps you can dream of in front of the barrage. The plateau was the ideal terrain. It was very different in other areas, like the eastern barrage and the hilly northern tip of the western barrage.

They had also a serpentine circuit with an electric contact to trigger an alarm, but not enough to kill anybody. The Army probably had more people on wheels than on foot, on the roads in this desert area in my area of responsibility. They patrolled the barrage every eleven minutes during the period from dusk until about 30 minutes before dawn.

There was no single system for the barrage; it was a function of the terrain, of the probability of crossing, and all that sort of thing.

COLONEL LAURE: You must remember the very high personnel cost. I was not in favor of further additions for the fence, because they would have cost too much in personnel: I would have had no personnel left to make an active counter guerrilla campaign.

GENERAL EZANNO: A passive barrage, as such, is not very effective. It has to be covered and manned. The price of manning is high. Also, it requires a high devotion to duty from the chaps who are manning it. I think it is the worst job in the world. Nearly two-thirds of the men were sleeping during the day in hot weather, and we had no air conditioning. They were on their feet from 6 in the evening until about 7 in the morning. That was for weeks and weeks, and it would ruin the health and the morale of the troops. That was very frustrating.

COMMODORE WARCUP: You said you used 80,000 men on this barrage. That is very expensive in manpower. With hindsight, do you think this could be reduced significantly by more air surveillance and more radar?

GENERAL EZANNO: You have to have men. I think we were giving the maximum possible air support to this barrage in my area. Air observation does not help during the night. You can have flares, radar-guided bombing, and items like that, but that does not fill the bill properly. You have to have men on wheels and you have to have small mobile reserves on five or ten minutes' alert.

COLONEL LAURE: The enemy constantly invented new devices to pass through the fence. They used rubber clothes against electricity and small wood rods to raise the electrified wires. Every week, they had a new device to cross the mine field. It had to be kept up to date continuously.

GENERAL EZANNO: It is something which is always in progress: it is something which is alive. You don't have a type of fence that is good forever. The enemy will always dream up something; you have to dream up something else. They tried in some sandy areas to get into the sand underneath the barrage, underneath the mines, too. It is something you have to work on each day to improve your air recon, improve your night alert, improve your radar guidance system, improve your ground radar detection, modify your patrol along the barrage, and so on.

COLONEL LAURE: I think, to sum up, that the barrage was very useful. First, the aggravation of the situation in Algeria was due to the fact that in 1956 and 1957 very important groups came from Tunisia with thousands of weapons. Half of the weapons used by the

rebels were not stolen or taken from the French; they were weapons that had come in before the barrage was built. If we had had to face the 20 battalions in Tunisia and the 10 in Morocco without this barrage, the situation would have been much more explosive.

EASTERN SAHARA, TACTICAL AIR COMMAND

COLONEL MITTERRAND: I was in command of the Eastern Saharan Tactical Air Command (Fig. 7). Colonel Laure said that the fence gave him trouble. It gave me a lot of trouble, too, but not for the same reason, because in my area there was no fence. The fences were very effective in the eastern and the western parts of Algeria, and the rebels would try to go around them to the south. That was the main problem that faced the command in the Sahara after 1958.

I am going to say just a few words about the Sahara. This country has a very peculiar climate. Air Force action was very difficult because of the sand and very high temperature. The sand severely abuses every part of an engine or other mechanical device. The very high temperature is also a great problem for personnel and machines. There is no movement in the air or on the ground when it is very hot or when the sandstorms occur.

My area extended about 1000 kilometers north-south, and 800 kilometers east-west. Everything was located to the north, except for some very quaint little villages and tribes in the Hoggar Mountains and some country very beautiful for Cook's tours.

The desert is not empty. Many people are to be found there; about half are living in oases and half are continually moving with camels. Some go from one part of the desert to another, covering thousands of kilometers without stopping. But generally, the tribes take their herds to specific pastures.

There is a great problem of communication. Traditionally, communication was accomplished with the camel. Vehicles were introduced some years ago, and airplanes have been used for only the last fifteen years. Airplanes changed the character of communication in the Sahara area, as you may imagine.

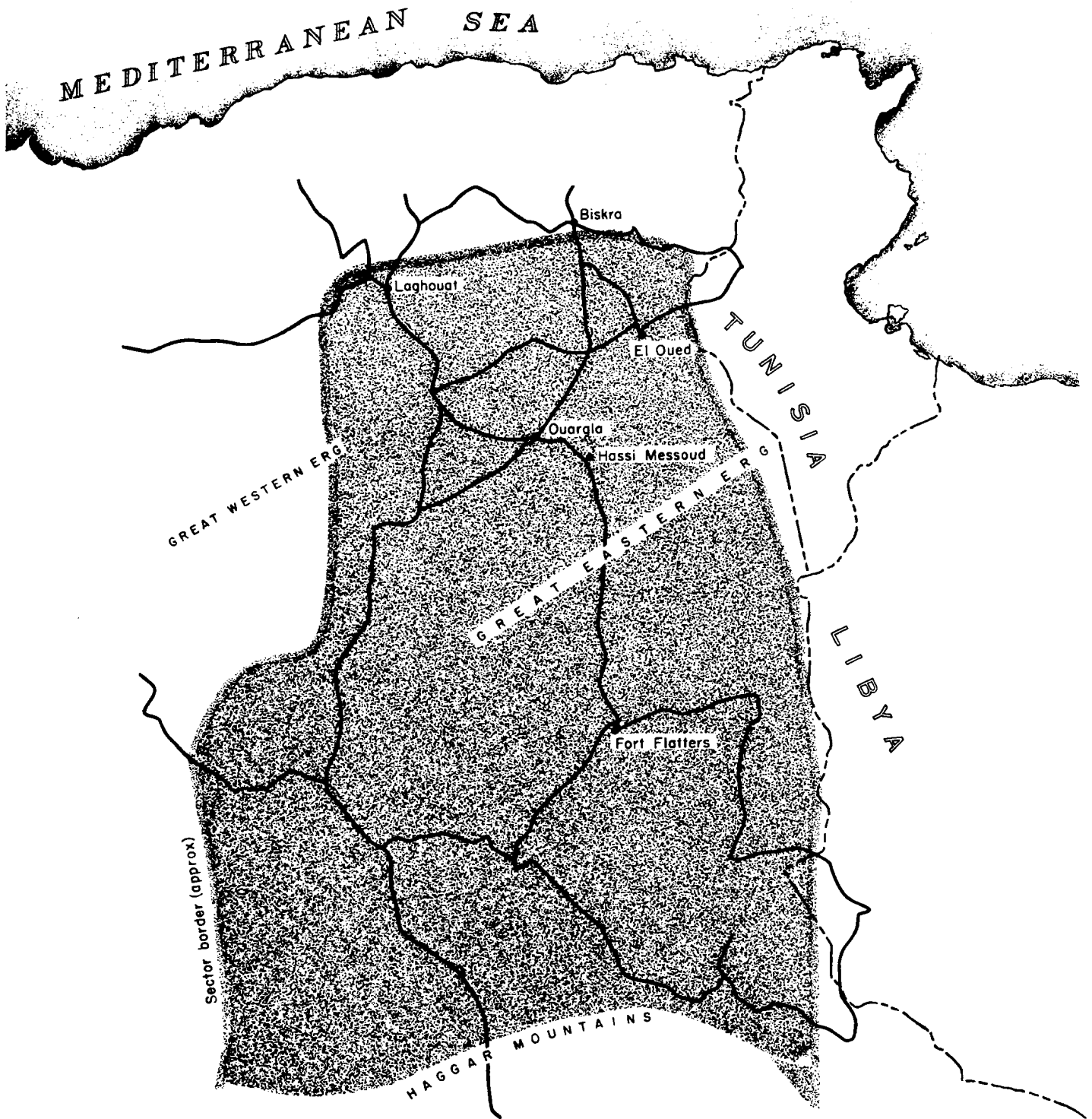


Fig. 7— Eastern Sahara Tactical Air Command

Another fact to be noted in this area, is the growth of the oil industry. As you know, there is a great development of the oil fields. The three biggest oil fields in the Sahara were located in my area, including Hassi R' Mel in the northwest, Hassi Messaoud in the middle, and Edjeleh in the east at the border.

Mission, Organization, and Forces

COLONEL MITTERRAND: The mission of the military forces in this area was two-fold; first, to prevent rebel penetration from the external territories, and second, to assure the protection of the oil fields.

Inside the area, there was no great trouble with the people, who were very quiet and almost in the same condition as before the war. Our only problem then was that of the borders. The rebels used the mountains in the north as an area of refuge and passage from Morocco to every part in the northern region. To the east were the rebels in Tunisia and small detachments of rebels in southern Libya.

The combined command in the Sahara was located in Algiers, where it was more pleasant to work and to rest. But that was not exactly the true reason. It is possible to compare the Sahara with a sea and Algiers with the port of this sea. Everything came from Algiers and all communications were through Algiers.

In the eastern area, both Air and Army command were in Laghouat, not a good location, but the site of political and civilian organization, and we had to adapt the military organization to the civilian organization. In the last months of the war, the organization of Laghouat was moved to Ourgla. The Tactical Air Command had three subordinate commands:

First, in the city of Touggourt, the Advance Air Command of Touggourt was adapted to the sector of Touggourt, and had a permanent subordinate detachment in El Oued. It was necessary to have something permanent, because it was the most advanced military organization to the east.

Second, in the city of Ourgla was the Advance Air Command adapted to the sector of Ourgla, and Ourgla was also the main base. This

Advance Air Command of Ourgla had a permanent detachment in a southern post, Fort Flatters, adapted to a subordinate Army command of the sector of Ourgla. We needed something permanent in the south, mainly to perform the tasks of evacuation of people, supply of Army troops, and support of petrol parties.

A third command was located at Laghouat, adapted to the sector of Laghouat. This was the only sector in my command with a task similar to that of my friend Colonel Laure's in the north. The sector was very close to the Saharan border and to the mountains.

The Advance Air Command of Laghouat was looking to the north, the Advance Air Command at Touggourt was looking to the east and the Advance Air Command at Ourgla was looking to the south. I had three activities--operational command, units, and territorial organization.

General Ezanno explained the tremendous means he had in Oran. My own were very poor in comparison. I had a squadron named the Saharan Reconnaissance Squadron, with very curious equipment for that name. I had some Junker 52s, very old German aircraft about as old as their pilots. But they were very effective aircraft in this area--they required a short airfield, no maintenance, maybe some oil, but caused no trouble at all. The squadron had also ten C-47s and ten Broussards, light, all-purpose liaison aircraft with six seats. In addition, I had a flight of MD-310 Dassaults, which were twin engine, all-purpose light aircraft, 8 seats, capable of reconnaissance, firing SS-10 rockets, evacuation, everything. There were two light flights of Army Aviation, each with six or eight very light observation airplanes. My strength was about 50 aircraft, but it varied.

The deployment was changed often. In Touggourt, I had three MD-315s (Flamants), two Army aircraft, two Broussards, one Junker 52, and two T-6s. The T-6s were used for a very particular mission, to keep open the railroad between Touggourt and Biskra. This railroad was used before the development of the pipeline to convey the oil from Hassi Messaoud to the north. It posed a very great problem to ensure arrival of the train at the port without incident. A surveillance organization was developed. Every day at dawn two T-6s patrolled the railroad at very low altitude to look for any attempt at sabotage.

The crews were so skilled that one day one of them reported the location of a tire which was not in good condition. This matter was checked and repaired.

In Laghouat, there were three Flamants, six Army aircraft, two Broussards, one Junker 52, one to three C-47s, and four to six T-6s. The T-6s generally were used in the mountains to the north for the benefit of my neighbors and not in my area.

The rest of my force was located in Ourgla, which was a permanent detachment. Total effective manpower was about one thousand men, seven hundred in this main base in Ourgla, one hundred in Laghouat, one hundred in Touggourt, and one hundred in Fort Flatters.

In the oil field of Hassi Messaoud, there was a little detachment of Army aircraft and we tried for two months to utilize helicopters there.

It was very difficult to develop this rather small command. In 1956, only five men of the Air Force were located in all this area and we had to grow from five men to one thousand, with the usual problems of accommodation, working facilities, and so on.

I had one base in Ourgla, three in Touggourt, and many others. My radio facilities were very poor and I did not have complete radio coverage because of the distance. I had in reserve two mobile sets.

Operations

COLONEL MITTERRAND: I will discuss with you a typical operation conducted in the Great Eastern Erg in my area during October 1959. It is an example of a completely independent operation of the Air Force. This erg extends from the Algerian Sahara into Tunisia. The people of this area are the Rebaya tribe, which has its base near El Oued and which moves each year up to Libya. In October the tribe was in Tunisia and moving from east to west. This band, about katiba size, was well known. They had gotten into some trouble with the Tunisian forces. The Tunisians are confronted with the same problem we are, their oil problem. The oil from the eastern Algerian wells is taken in pipeline through Tunisia and the Tunisian government had no intention of permitting trouble in that area. The rebels tried to

cross the border by going down the fence to the end and then back up to the mountains in Southern Algeria.

We had a routine patrol flight over the line of wells along the border of Tunisia. One aircraft reported some very unusual movement. Another reconnaissance aircraft was sent to investigate and was fired upon. The Advance Air Command launched another mission with an armed Flamant, which opened fire on the rebels.

At the same time, all available means in Touggourt and Laghouat were gathered and the Advance Air Commander requested air aid from Tactical Air Command, Constantine. Within a few hours, four B-26s had arrived at Touggourt; that afternoon they attacked the band of rebels. The enemy group was partly destroyed, but not finished.

The commander of Touggourt also requested aircraft with flares for night surveillance. The area was lighted all night by flares, not to continue the fire action, but to oblige the band to stop and hide in the bushes. The next day the scheme was repeated: one Flamant on reconnaissance to maintain contact with the band, three or four more Flamants to attack, followed by four B-26s. This action continued three days.

During this air action, the Army troops attempted to reach the trouble spot, but were not able to do more than ten km per day in some parts of the area. When the fight ended after three days, some rebels escaped toward Tunisia. The ground forces arrived to find 40 rebels dead and 95 camels loaded with equipment and weapons, including one 81-mm mortar, one machinegun, six light machineguns, and rifles. Also, the flag of the band was captured because the man in charge of it had been killed.

That was the only large engagement in this part of the Sahara, fortunately. We had some other skirmishes, but the bands engaged were never more than six or eight men.

IV. SUMMARY OF CAMPAIGN

COLONEL REINHARDT: We have heard an authoritative, informative discussion of the French Campaign in Algeria by Air and Ground commanders who participated. We have gained a clear picture of the opposing forces, their missions and operating procedures, and have heard interesting accounts of specific, typical operations in widely different terrain and environments. The story has been one of military success despite difficulties, initial government lethargy, and a resourceful enemy. Three-fourths of the organized force of 40,000 armed rebels inside Algeria were destroyed and the remainder scattered in small groups throughout the less accessible parts of the country. Simultaneously, some 30 rebel battalions in Moroccan and Tunisian sanctuaries were kept out of Algeria by the tight border barrages. I think the main points could be grouped under perhaps five headings, and I shall try to summarize that way.

COMMAND AND CONTROL

The emphasis throughout these discussions has been on the necessity for joint ground-air military actions. The command structure developed during the war was headed by a Commander-in-Chief with a joint staff. At operational levels, each of the three Army Corps--Tactical Air Commands, and the 15 Army Area (Divisional)--Advance Air Commands, set up headquarters close together, often in the same building. Each JOC, stripped-down essentially to a single room, was staffed by Army and Air Force operations, intelligence, and communications officers working together, unhampered by non-combat functions or personnel. In field operations, the ground command was assisted by an Air Directing Post in charge of immediate air support. Often, ground and air field commanders used joint airborne command posts. Flexibility in control procedures even permitted an aerial observer flying cover over a column to take temporary command in an emergency, since he alone would have a clear view of the whole area.

All aircraft flights in the Western Algerian Area were put under the control of the Area Air Force commander to ensure quick, positive identification of any intruding aircraft. Similar concern for unified efforts appeared in Colonel Laure's emphasis that the sector commander exercise control in political, administrative, judicial, as well as military fields in order to oppose effectively a rebel commander supreme in his own area.

Colonel Laure attributed much of French military success to the initiative displayed by low-level commanders, the stress laid on intelligence, and the swiftly moving small-scale tactical actions developed by the French. He described counter guerrilla warfare in general as "a combined Air-Army problem requiring a lot of imagination and cooperation--a human problem rather than a technical problem."

AIR OPERATIONS

A major portion of the Air operations were joint activities with the ground forces, including such missions as air transport, close support, patrol, column cover, and reconnaissance. The air defense system had the principal independent air mission, that of preventing enemy air intrusion.

General Ezanno described a combined ground, air, and airborne "netting operation" against an enemy on a remote 100 km² plateau near Saida. The battle included both air and ground force action to prevent enemy escape from the tightening circle, landing of commandos by helicopter in the battle zone, and close support by both attack aircraft and armed helicopters.

The general emphasized five points concerning tactics for this type of joint airborne assault:

1. Selection of the target area and the helicopter landing zones are joint decisions for the ground and air planners, working from good photos and maps.

2. There should be no movement of ground forces near the area before the attack.
3. Fighter-bombers or light bombers with VT-fuzed or cluster bombs must neutralize the landing zones for troop-carrying helicopters less than two minutes before the helicopters touch down.
4. Helicopter assault troops delivered should be provided very close support by helicopters armed with rockets or cannon during the period of landing and initial deployment.
5. Attack aircraft should be immediately available for air support as required.

Today's discussions stressed again the importance of air transport in this type of warfare, notably for movement of the strategic mobile reserve force under Plan Challe, for delivery of barrage alert forces in answer to alarms, for paratroop operations, in joint assault as described above, etc. Ground patrols in the Sahara Desert region to the south often were sustained entirely by air support.

General Ezanno stressed the need during helicopter transport missions for following safe itineraries, i.e., flying over land held by friendly forces whenever possible, and flying high enough to avoid enemy small arms fire. For the conditions in Algeria, 1500 ft was approximately the minimum safe altitude. These rules minimized losses to enemy action.

Reconnaissance continued to be a major role of airpower, collecting information upon which many anti-guerrilla operations were based. Air patrols covered towns and areas where Army troops were not stationed. Pilots compiled reports on the observed behavior of the populations and learned the patterns of normal activities. Thus, irregular activities provided information on likely enemy moves in the vicinity well in advance of information from other sources.

Colonel Mitterrand described a unilateral action by air against a rebel band trying to outflank the barrage in the Southern desert. The band was detected and put under attack for three days and nights. About 40 rebels had been killed and 95 camels loaded with equipment and weapons were captured when ground forces reached the area.

COMMUNICATIONS

An important aspect of airpower utility was the nearly instant communications available. The air support network was always open, available to all friendly forces. A request for airpower usually was heard simultaneously at the division, advance, and tactical command posts.

General Ezanno, siting his radio antennas on high points, had complete radio coverage of his area. The pilot of any aircraft at 1000 feet or higher could tap the network without losing sight of an enemy by having to fly higher or leaving an area to establish radio contact.

SPECIAL OPERATIONS

An operation unique to the Algerian War was the maintenance of fence barrages that prevented 30 battalions of rebels in Tunisian and Moroccan sanctuaries from entering the country or sending supplies to the FLN inside Algeria. Building, improving, and maintaining the barrages was an expensive but effective way to seal off the rebellion. Some 80,000 men were tied up in the barrage garrison and alert force. Air was an integral part of this effort, used in day and night patrols, flare-lighting the fences and nearby area, bombing enemy forces attempting to cross the barrage, and transporting ground alert forces to the vicinity of a breakthrough.

CIVIL ACTIONS

General Giroult rated the pacification and administration of the populace as his most important mission. In his sector 600 military doctors and 250 nurses served the people, even in the most remote villages. In addition, there were 750 schools with a thousand soldiers as teachers.

Finally, we note that military victory did not prevent the separation of Algeria from France in the later negotiations.

Appendix

BIOGRAPHIC SKETCHES OF PRINCIPAL PARTICIPANTS NOT ON ACTIVE DUTY WITH
U.S. ARMED FORCES

Major General John R. Alison, USAFR, was the deputy commander of the Number 1 Air Commando Force, which supported the Chindit Forces in Burma in 1944. He received his commission in the Air Corps Reserve in 1937, served with U.S. missions in England and the Soviet Union, and commanded a fighter squadron under General Claire Chennault in China before helping to organize the Air Commandos. Following the Burma campaign, he took part in the Luzon and Okinawa campaigns. His current Reserve assignment is as Assistant to the Commander, 15th Air Force. A former Assistant Secretary of Commerce, General Alison is an Air Force Association Past President, and a Vice President of the Northrop Corporation.

Lieutenant General Yves Paul Ezanno, French Air Force, was Commanding Officer of the 2nd Tactical Air Group in Algeria, conducting the air operations of the "Plan Challe" from July 1957 until April 1959. He was an instructor at the Pilot Training School, Saint-Cyr, when on the French Armistice Day in 1940 he flew a liaison aircraft to England and joined the Free French Forces there. He flew against the Afrika Korps (1941-42), later was transferred to England, attached to the RAF, and given command of the 198th RAF Fighter Squadron (1944). He was shot down in the Netherlands in October 1944, but returned to Allied lines despite enemy fire. He had also served in both Indochina and Korea prior to his command in Algeria. He was Assistant Chief of Staff for Operations and Training at the Allied Air Force Headquarters (AIRCENT), before being assigned as Deputy to the French Representative to the NATO Standing Group in Washington.

Major J. Ferrando, French Air Force.

Brigadier General A. Giroult, French Army.

Colonel René Laure, French Army, commanded the brigade (operational and administrative control) of Adrar in the Western Sahara (1957 and 1958) and the brigade of Bone in Eastern Algeria in 1959. He is a graduate of the Ecole Speciale Militaire, Saint-Cyr, and of the Army War College. During World War II he was in charge of the "Indochina Section" in "Force 136," Calcutta, and later, assumed command of guerilla forces in Upper Laos. He has served 25 years overseas, in Africa and Asia. He is assigned to the French Delegation to NATO in Washington.

Brigadier General Monro MacCloskey, USAF (Ret.), organized and commanded the first U.S. AAF Heavy Bomber Squadron (and later Group) to engage in night supply dropping operations behind enemy lines in Northern Italy, the Balkans, and Southern Europe from Bases in North Africa and Italy. He has served as Chief of the Reserve and National Guard Division in Air Force Headquarters, and, upon graduation from the National War College in 1948, was named Chief of the Air Intelligence Policy Division, USAF Headquarters. He was Air Attaché in Paris from 1949 to 1952, after which he was appointed Commander of the Air Resupply and Communications Service of the Military Air Transport Service. Prior to his retirement he commanded the 28th Air Division. Among decorations awarded to him by the United States, France, and Morocco are the Silver Star, the Distinguished Flying Cross, the Legion of Merit, the French Legion of Honor, Degrees of Commander and Officer, and Croix de Guerre with Gold Stars and with Palms.

Colonel Jacques Mitterrand, French Air Force, commanded the Air Tactical Group in the Eastern Sahara in 1958-59. He is a graduate of the Ecole Speciale Militaire, Saint-Cyr, and of the Air War College. In World War II he served as a bomber pilot in a medium bomber squadron that was incorporated in 1944 within the 42nd (U.S.) Bomb Wing. He has served about ten years in posts in North and West Africa. He is assigned to the French Delegation to NATO in Washington.

Squadron Leader A. Twigg, RAF, was a Flight Commander on No. 33 Fighter Squadron in Malaya during 1950 and 1951. Since then his duties have included tours with the joint Helicopter Experimental Unit and, as Commanding Officer, with No. 225 Helicopter Squadron. He is presently serving on the RAF staff of the British Defence staffs, Washington.

Brigadier General Russell W. Volckmann, USA (Ret.), commanded the U.S. Armed Forces in the Philippines, North Luzon, from 1942 through the liberation in 1945. He is a West Point graduate, and was in command of the 11th Infantry (Philippine Army). He escaped from Bataan after the surrender and joined the guerrilla forces, rising to their command in North Luzon. After World War II he attended the Armed Forces Staff College and the National War College. After graduation he became Assistant Commander of the 82nd Airborne Division. He is author of Field Manual 31-20, Combatting Guerrilla Forces, and Field Manual, 31-21, Organization and Conduct of Guerrilla Forces, as well as the book, We Remained, which is his account of three years behind the enemy lines in the Philippines. He holds the Distinguished Service Cross.

Air Commodore P. E. Warcup, C.B.E., RAF, commanded the RAF at Kuala Lumpur, 1957-59. He is a graduate of the RAF College, Cranwell, the Joint Services Staff College, and the Imperial Defence College. He was an RAF test pilot at the outbreak of World War II, and was a prisoner of war in Germany from 1940 to 1945. He is currently the Assistant Commandant, RAF Staff College.